AUGUST, 1932

COTTON

Serving the
TEXTILE INDUSTRIES

If You Reduce
The Quality of Your Cloth
Or Your Production
By Even a Small Percentage
By Using Substitute Repairs
Or Bobbins or Shuttles
Not Made By the Builder
Of Your Looms
You Will Lose More Money
Than You Will Save
Think This Over
Check It Up

DRAPER CORPORATION

Hopedale, Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

Copyright 1917 by Draper Corporation

LIBRARY OF CONGRESS
AUG 18 1932
TECHNICAL DIVISION

Announcing...

NEW DAY-STEEL PULLEYS

for use with Dayton Cog-Belts

And now—the introduction of the new Day-Steel Pulley, designed especially for use with the famous Dayton Cog-Belt, marks another notable advance in power transmission equipment. This new, scientifically designed pulley provides new economy, new efficiency, new standards of performance. It is lower in price and offers tremendous savings in original cost and in maintenance expense. It embodies exclusive features of construction. For example, it is

—*accurately formed* from heavy-gauge pressed-steel, strongly welded both at the rim and web—assuring *maximum strength and ruggedness* with a substantial *reduction in weight.*

—*rigidly assembled* with a hub of unique design—providing *true running and accurate balance.*

—*finished* in high quality aluminum—providing *complete protection and outstanding appearance.*

—*made with 1 to 5 grooves*—for all ratings of 7½ h.p. and below—all speed ratios—all center distances.

Used with Dayton Cog-Belts, it offers what is by all odds the highest development yet attained in power transmission equipment. Whether installed in your own plant or on machinery for resale, there's no other drive to equal the economies and the outstanding performance of Dayton Cog-Belt Drives with Day-Steel Pulleys.

It will pay you to find out how this new and different pulley saves money, saves power and increases production—how low it is in price—how easy to select the proper drive without engineering or calculations—how immediate shipments can be made from stock. Don't overlook this opportunity. We'll welcome your inquiries. Ask for Bulletin No. 110, which gives complete information.

THE DAYTON RUBBER MANUFACTURING CO., Dayton, Ohio

Factory Distributors in Principal Cities and all Westinghouse Electric and Mfg. Company Sales Offices

Dayton

COG-BELT DRIVES

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription rates United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign countries, $2.00 per year. Entered second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

WHEREIN DO YOUR PROFITS LIE?

Even profits sometimes do not tell you the truth, the whole truth and nothing but the truth about your actual profit possibilities.

It is good business sense to go a little back of profits to analyze just how much larger they can be, if certain elements of overhead were eliminated.

Faulty lubrication is a profit stealer even within your present profits. It robs you of money which is rightfully yours by causing unnecessary breakdowns, production delays, spoilage and cost of repair parts.

Many leaders in the textile field have found in a strict program of Alemite High Pressure Lubrication PLUS the use of the correct Alemite Special Lubricants a new source of profits above their normal profits.

The tremendous savings in breakdowns, lubrication time, amount of lubricant, spoilage and power offer you possibilities of profit which you can only realize after rigid test.

Mail Coupon Today for full information on the ability of Alemite to increase YOUR profits!

Alemite Corporation, (Division of Stewart-Warner)
2682 N. Crawford Ave., Chicago, Illinois

Gentlemen: I am interested in information leading to the reduction of costs through proper lubrication.

Name .....

Company .....

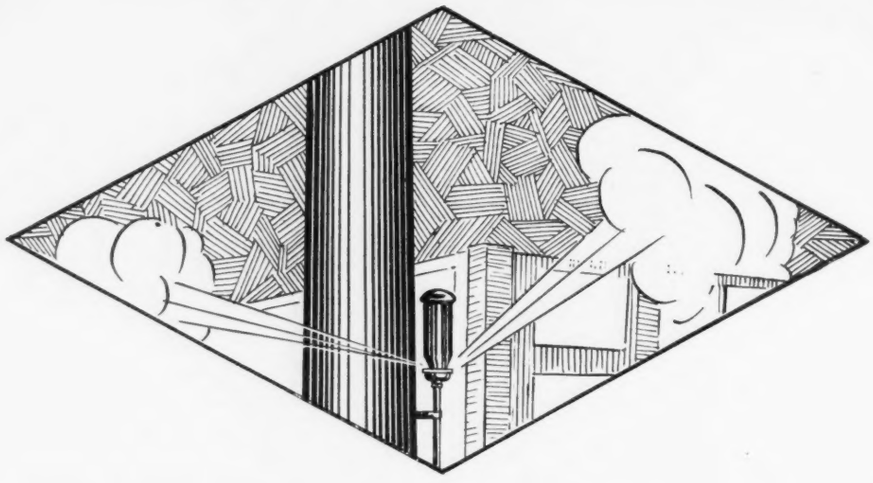
Address .....

ALEMITE

PIONEERS IN SPECIALIZED LUBRICATION FOR INDUSTRY

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

CARD CLOTHING



DELIVERED ON TIME!

The whistle blows for the day's work to begin . . . the hustle and bustle of men getting on the job . . . "You mean the new card clothing is here already?" the carder asks of the foreman. "You only put in the order yesterday." "I know," replies the foreman, "but the 'supe' sent a wire to Howard Brothers—I'll say those birds know how to rush 'em up. Come on, get busy!"

. . . and so in scores of instances Howard Brothers have come out with flying colors in quick delivery co-operation. They make it a point to keep large stocks for immediate shipment. Their branch plants and warehouses are strategically located in textile centers.

You can get the quickest possible service, whether your requirements are Tuffer Card Clothing, Cylinder, Doffer, Stripper, Burnisher or Emery Fillets; Napper Clothing; Wire Heddles; Hand Stripping Cards; Strickles.

Also speedy repairing of Top Flats and Lickerins. Extra sets of flats can be loaned to mills.

The Howard Brothers quality is known throughout the textile industry. Specify Howard on your next order.

TUFFER CARD CLOTHING IS GUARANTEED AGAINST SHELLING OUT

HOWARD BROS. MFG. CO.

HOME OFFICE and FACTORY: WORCESTER, MASS.

Southern Plant
244 FORSYTH ST., ATLANTA, GA.

Branch Offices
PHILADELPHIA, DALLAS and WASHINGTON, D. C.

"I am so pleased with the dyeing of the ULTRA Package and Beam Dyeing Machine that I am going to install more ULTRA Machines" . . .

WILLIAM MacNEILL, *president*
Caledonian Dye Works, Philadelphia

In addition Mr. MacNeill says . . .

"WE recently loaded the *ULTRA* Machine with 270 pounds of developed black, 60/3 ply, hard twist mercerized cotton yarn on parallel perforated standard paper tubes. This is possibly the most difficult yarn to dye *perfectly* that comes into our place. The *ULTRA* Machine, because of its thorough penetration, dyed this yarn to a fine even black throughout—it was perfect!

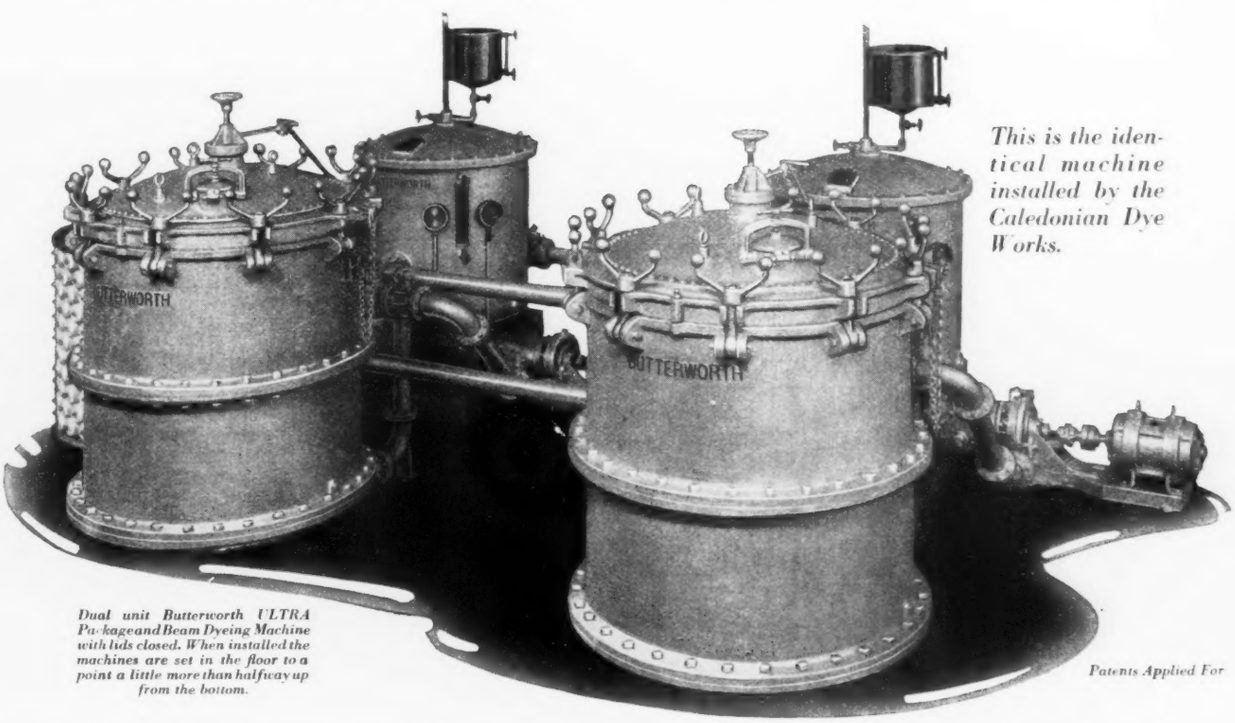
"The *ULTRA* Machine has met every claim made for it and I am so pleased with its operation that I am going to install more *ULTRA* Machines, for these will enable us to give our customers the finest dyeing possible."

We need add nothing to Mr. MacNeill's statement, except that *ULTRA* Package and Beam Dyeing Machines can be furnished in sizes adapted for the dyeing of 25, 50, 100, 200, 300, 500, 600, 800, and 1600 pounds of yarn on tubes. The 100, 500 and 800 pound machines can also be used for dyeing warp yarns on section beams in lots of 100 to 2000 pounds per dye batch. There is also a one pound package machine for laboratory work.

We shall be glad to make arrangements for anyone interested to see the *ULTRA* Machine in operation at the plant of the Caledonian Dye Works.

H. W. BUTTERWORTH & SONS COMPANY
Established 1820
PHILADELPHIA, PA.
PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office:	*Southern Office:*	*In Canada:*
TURKS HEAD BLDG.	JOHNSTON BLDG.	W. J. WESTAWAY CO.
Providence, R. I.	*Charlotte, N. C.*	*Hamilton, Ontario*



This is the identical machine installed by the Caledonian Dye Works.

Dual unit Butterworth ULTRA Package and Beam Dyeing Machine with lids closed. When installed the machines are set in the floor to a point a little more than halfway up from the bottom.

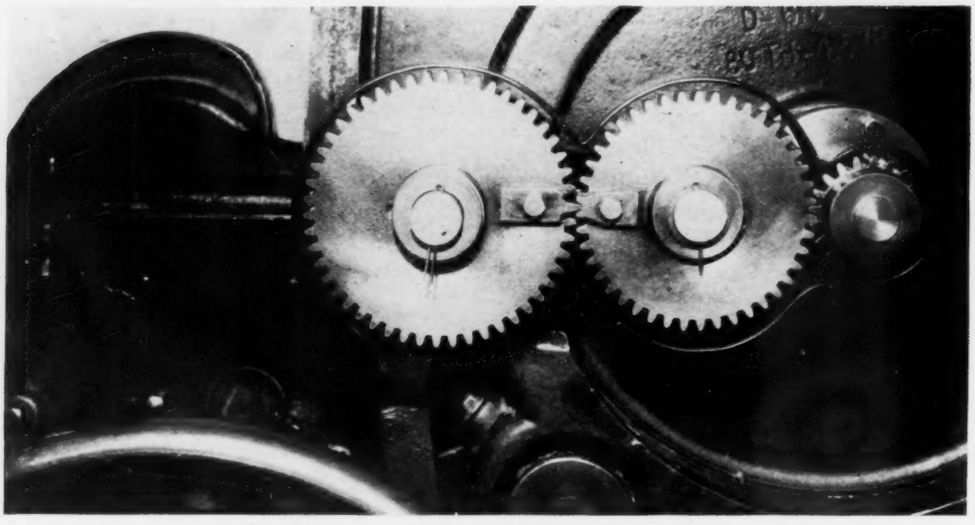
Patents Applied For

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF RAYON AND FINISHING MACHINERY FOR THE TEXTILE INDUSTRY

WHY WEIGH PICKER LAPS?

Unless They Are The Right Length, Weighing Them May Do More Harm Than Good.



The Aldrich Positive Stop Motion Measures the lap *exactly to length.*

Designed to fit old pickers, and can be attached in 10 minutes with no tools but a wrench.

The ordinary stop motion on a picker is slow and inaccurate. Variations of a foot or more in the length of laps are frequent. Yet a foot in a 15-ounce lap is 5 ounces, and would call for an evener adjustment. This constant setting of the evener when there is nothing wrong with the lap but its length will actually make bad laps out of good ones.

If the lap is always exactly the right length, the evener is never adjusted except when it needs it. Fewer laps are lost, and weights are held closer to standard.

AldricH MachinE WorkS

Greenwood, South Carolina

LOOK

Casablancas *spinning installations* INCREASE during hard times

The line represents, *accurately*, the sales of Casablancas Long Draft Spinning Spindles by Whitin Machine Works during the years 1929, 1930, 1931. This year sales promise a further increase.

How account for the fact that during a period when the number of active cotton spindles in the country has been steadily going *down* the number of Casablancas Long Draft Spindles has *increased* by leaps and bounds?

IT'S AS SIMPLE AS A B C

Casablancas Long Draft Spinning is so much more economical that in these times it has become essential to profitable operations. Casablancas Spinning does these things:

1. Decreases card room labor cost.
2. Saves creeling labor and waste.
3. Eliminates much machinery.
4. Reduces floor space.
5. Is more flexible.
6. Produces a better quality yarn.
7. Saves power and overhead.

It's really as simple as A B C, as you will learn from a study of "The ABC of Long Draft Spinning." If you haven't seen and studied this book - send for a copy *today*.

WHITIN MACHINE WORKS

ESTABLISHED 1831

Fales & Jenks Division
Woonsocket Machine and Press Division

Whitinsville, Massachusetts, U. S. A.

Charlotte, N. C. Atlanta, Ga.

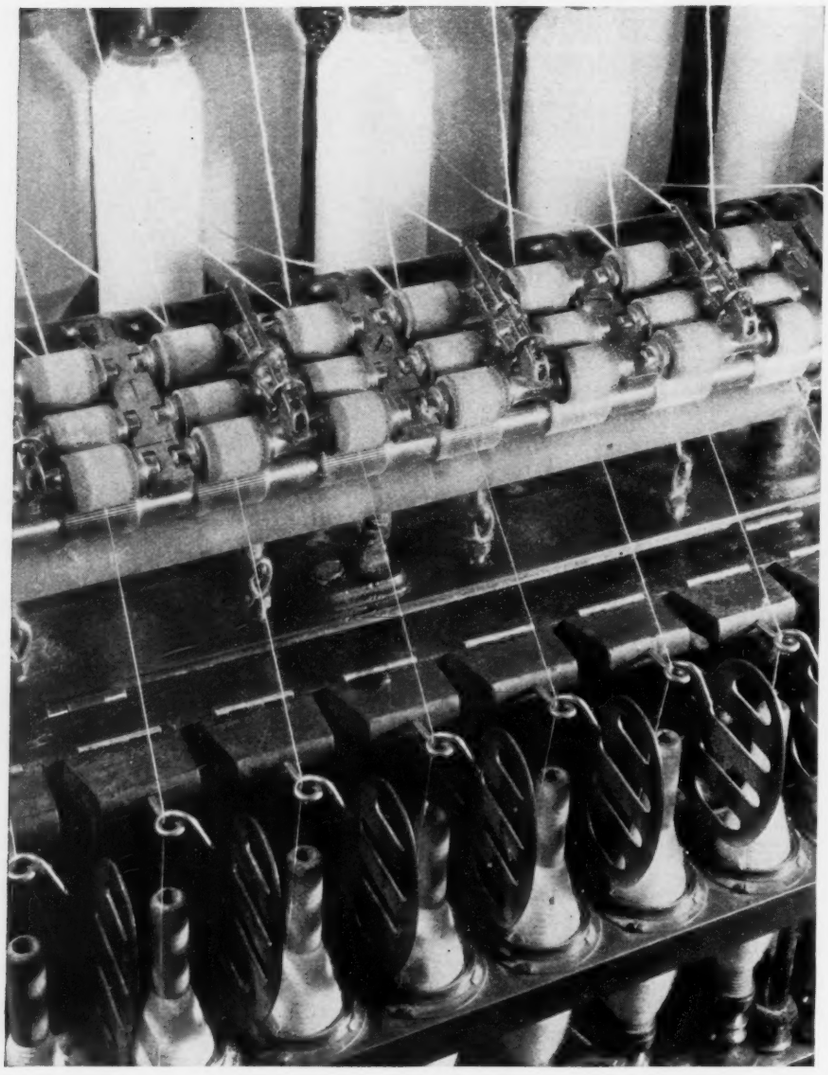
WHITIN MACHINE WORKS
Whitinsville, Mass.

Send me a copy of "The ABC of Long Draft Spinning."

Name.....

Address.....

City..... State.....



WHY POSTPONE *this* 60% CASH SAVING?

WHAT is it costing *you* to delay the change over to Armstrong's Seamless Cork Cots?

Mill owners tell us they're saving from 40% to 78% with seamless cork. And they have the cost figures to prove it. Get out your pencil and paper and figure what this average saving of 60% would mean in *your* mill.

More than 100 mills, over 25% of the industry's total spindlage, have adopted Armstrong's Seamless Cork Cots. Already over 5,000,000 spindles have been covered, and that number is growing as fast as replacements permit.

Economy isn't their only virtue. Many mill owners say Armstrong's Seamless Cork Cots actually *improve* running conditions. Cork rolls are less affected by changing humidity. Eyebrows are noticeably decreased. This prevents bunches, uneven roving and yarn, and excessive end breakage. Less trouble is experienced with lap-ups and hard ends. And Armstrong's Seamless Cork Cots are doing these things under all sorts of operating conditions, in mills spinning from 2s to 120s.

Send for Free Book of Mill Data

Read the actual cost studies made by the mills themselves . . . expert analyses based on independent research . . . full details of all the advantages of Armstrong's Seamless Cork Cots. Send for your copy of our free book: "The Facts About Armstrong's Seamless Cork Cots." Address Armstrong Cork Company, 923 Arch Street, Lancaster, Pennsylvania.

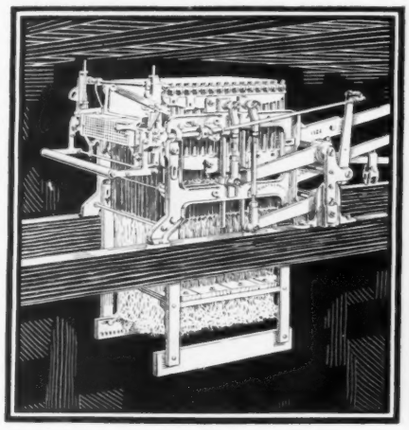
Armstrong's (A) Product

Armstrong's SEAMLESS *Cork Cots*

For Spinning and Card Room Rolls

You Can't Control the Market
. . . But what about *costs?*

OUT in the market place, profit is struggling for a bare existence. Cut prices can't be controlled—satisfactorily. Now, more than ever, your profit must be groomed and nurtured in your own plant. That means the stripping away of obsolete equipment. That means that every operation must be studied with the microscope—accurately gauged by the question—"Is it doing its work economically *enough?* Or is it nibbling at profits rightfully ours?" Halton's Jacquards answer that first question affirmatively! The operating improvements, the low maintenance costs, the versatility of Halton's Jacquards will bring you your whole profit per installation. That is why Stead and Miller, Barrymore Seamless, Sidney Blumenthal are using them! That is why your own proportionate profit per jacquard will increase *in spite of the market,* if Halton's Jacquards become a part of your replacement program. Make them so! At least look through our catalogue—now. Just write!

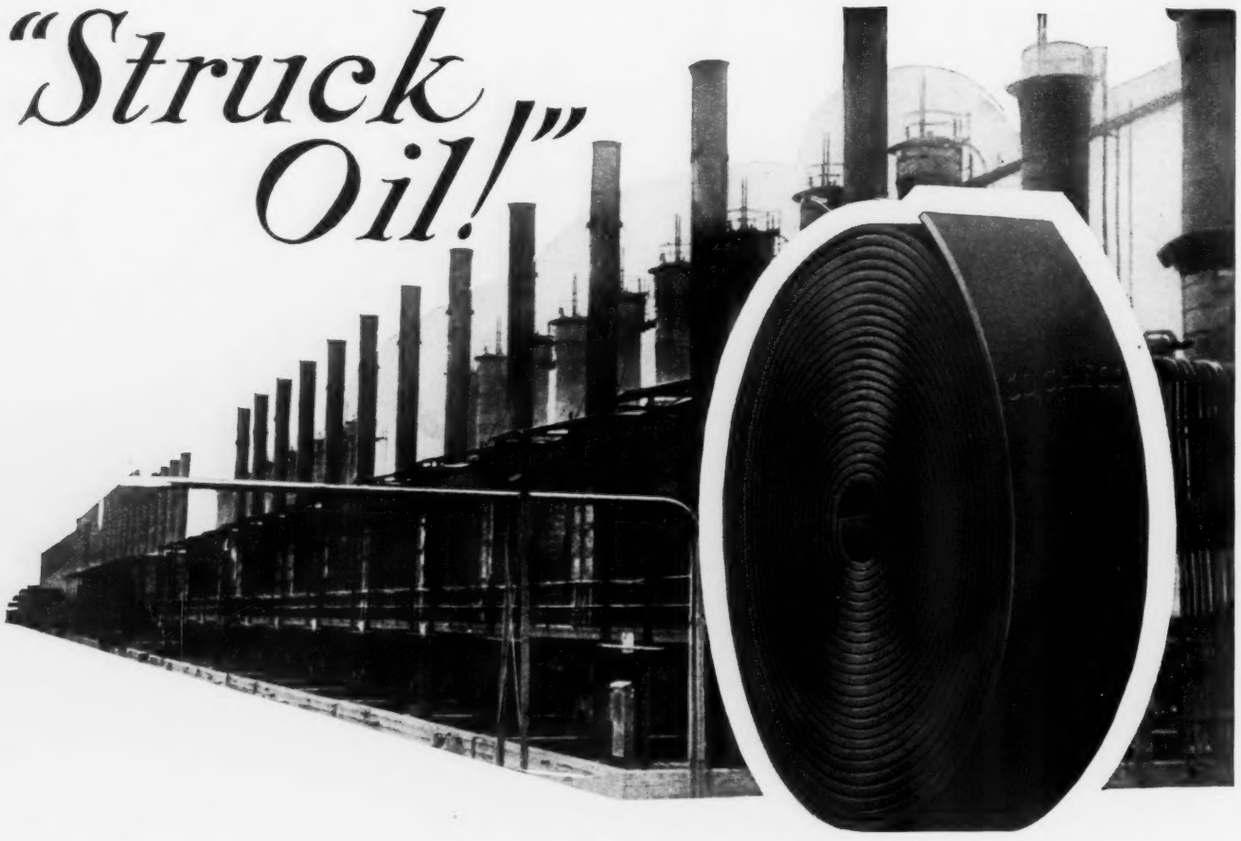


HALTON'S JACQUARDS

THOMAS HALTON'S SONS, "C" and Clearfield, Phila., Pa.

Selling Agents H. A. FORBES, P. O. Box 1663, PATERSON, N. J. . Tel. Lambert 385-92W
DENNIS J. DUNN, 5th and College Streets . . . . . CHARLOTTE, N. C.

"Struck Oil!"



"The Power Behind the Product"

Oil—a forest of oil derricks—miles of pipe lines—vast refineries—the ever widening field of oil utilities. Is there romance in oil?—plenty of it—and incalculable, practical value.

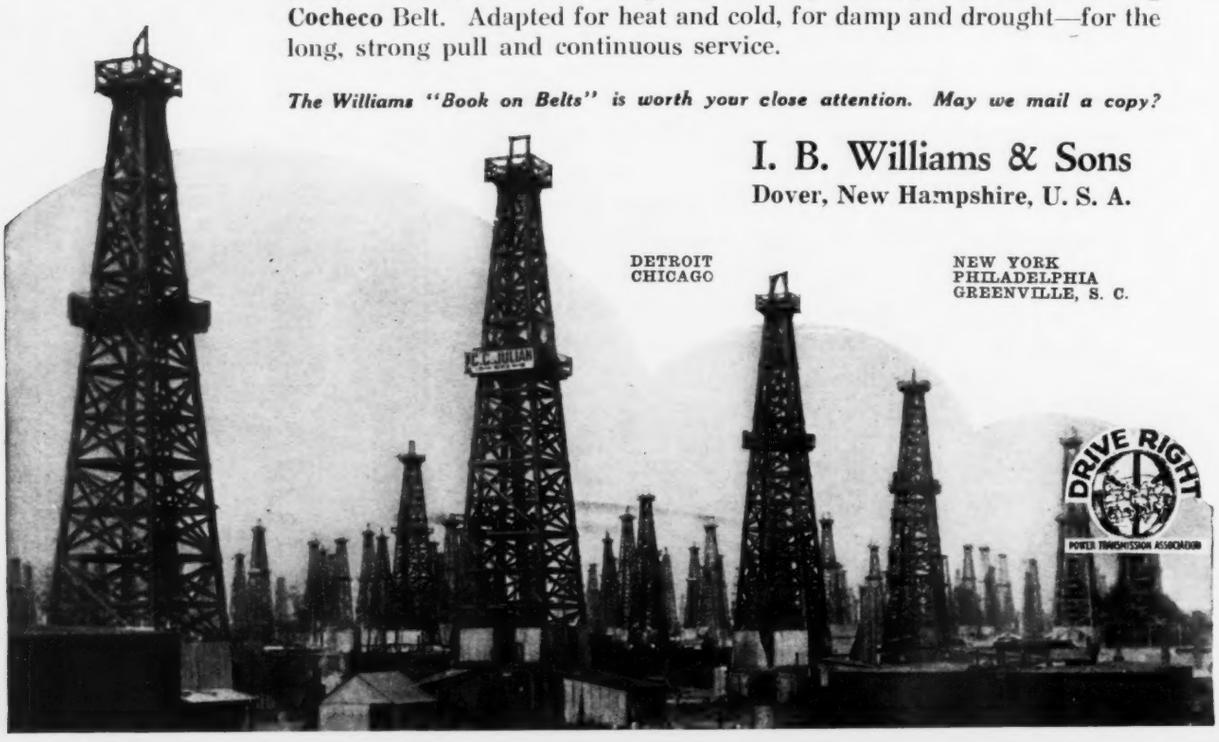
The Oil industry shoulders into a thousand activities—and serving in its own way under and through, and with these activities, you'll find **Cocheco** Belts. *The* leather belt—the powerful, long wearing, condition meeting **Cocheco** Belt. Adapted for heat and cold, for damp and drought—for the long, strong pull and continuous service.

The Williams "Book on Belts" is worth your close attention. May we mail a copy?

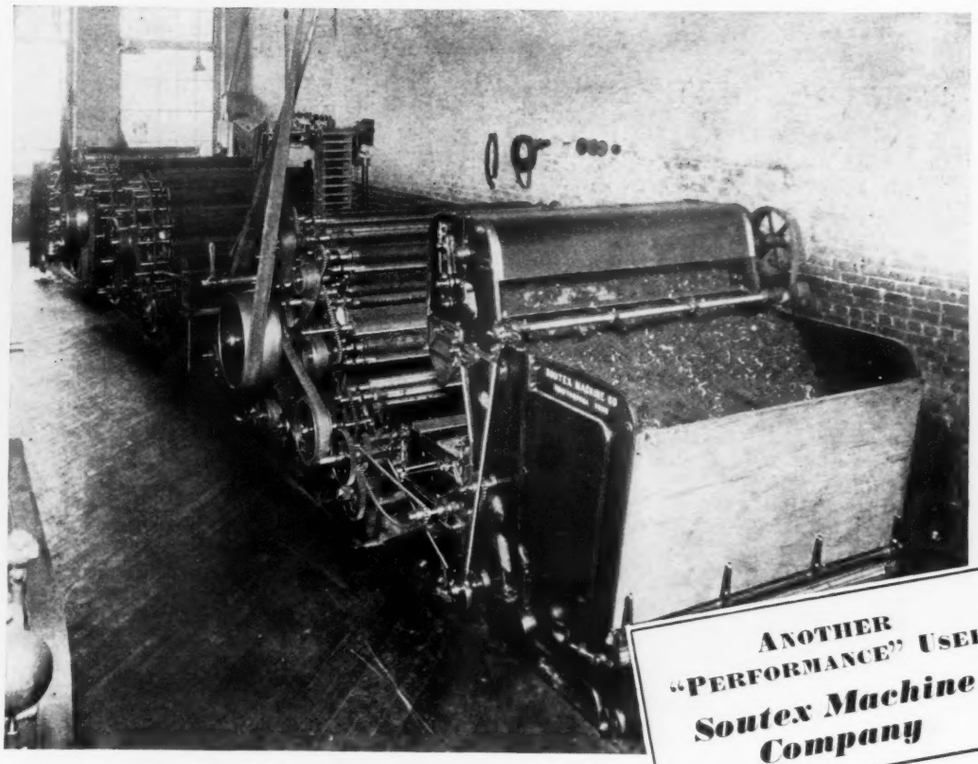
I. B. Williams & Sons
Dover, New Hampshire, U. S. A.

DETROIT
CHICAGO

NEW YORK
PHILADELPHIA
GREENVILLE, S. C.



UNIFORM RESULTS WITH SKF INSURE QUALITY



ANOTHER "PERFORMANCE" USER
Soutex Machine Company

WHERE PERFORMANCE TAKES PREFERENCE OVER PRICE

TWELVE points on the new three cylinder Soutex wool carding set are equipped with SKF Ball Bearings . . . to insure continuity of operation, low upkeep and improved quality of finished product. And every one of these highly desirable results is consistently achieved, a definite indication of why SKF Performance Takes Preference Over Price, not only with Soutex, but the mills where the machine is installed.

Accuracy is one of the prime requisites for this type of application. The maintenance of close settings influences final results. SKF precision is unvarying throughout a long life . . . the bearings show no wear and never require adjustments. Consequently it is possible to maintain uniform efficiency with very little attention. Sealed housings also prevent lubricant leakage, spoilage and make for a cleaner machine.

● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little.*

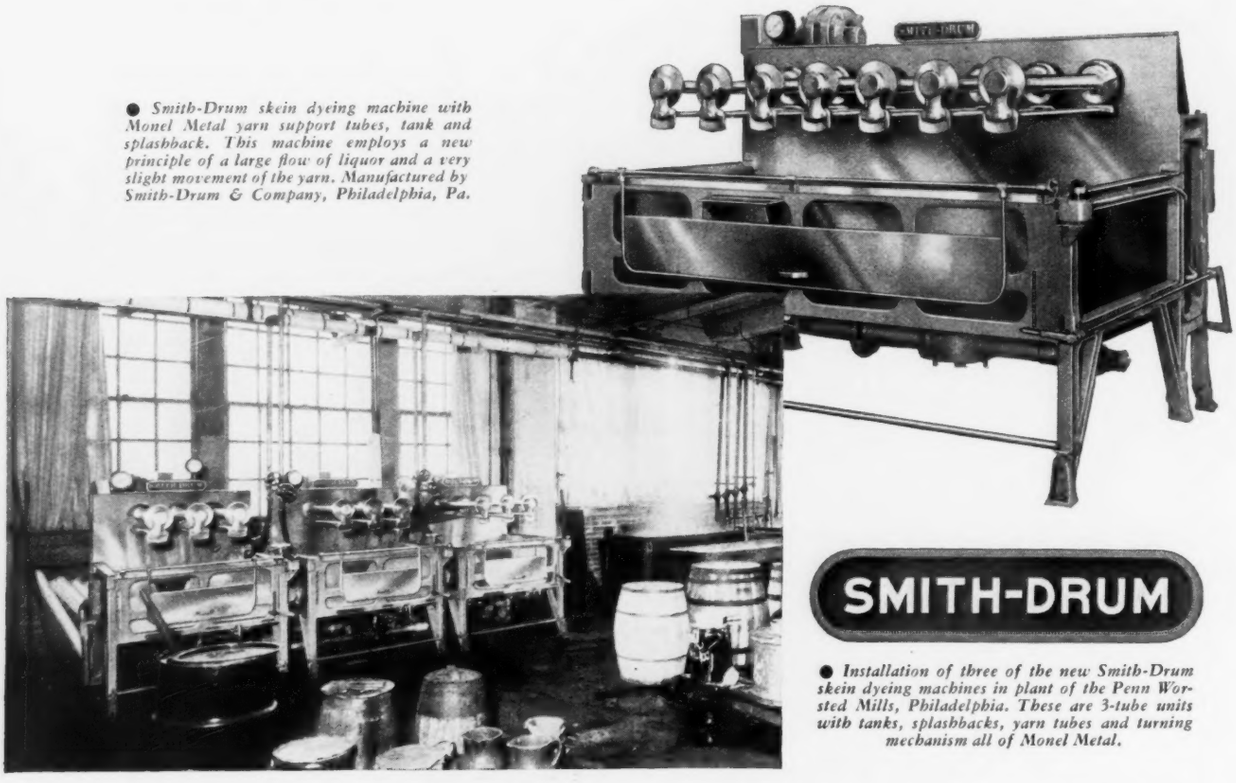
2905

SKF INDUSTRIES, INC. 40 EAST 34th STREET, NEW YORK, N. Y.

SKF

Ball and Roller Bearings

Yarn is safe with MONEL METAL



● *Smith-Drum skein dyeing machine with Monel Metal yarn support tubes, tank and splashback. This machine employs a new principle of a large flow of liquor and a very slight movement of the yarn. Manufactured by Smith-Drum & Company, Philadelphia, Pa.*

SMITH-DRUM

● *Installation of three of the new Smith-Drum skein dyeing machines in plant of the Penn Worsted Mills, Philadelphia. These are 3-tube units with tanks, splashbacks, yarn tubes and turning mechanism all of Monel Metal.*

NO CHAFING...NO DISCOLORATION

● When Smith-Drum & Company designed their new skein dyeing machine, they realized the vital importance of using a construction material which would give the yarn maximum protection against discoloration and chafing. They also needed a strong and durable material that would insure long equipment life despite severe use and frequent cleaning. • Because Monel Metal met these rigid requirements better than any other available material, Smith-Drum have built their new machine mainly of this modern Nickel alloy. Monel Metal is used for yarn tubes, turning mechanism, tank and splashback...for all metal surfaces which come in contact with yarn and dye liquor. • To these vital parts Monel Metal brings an ideal combination of corrosion-resistance, smoothness and strength. Monel Metal is not affected by most dyestuffs and chemicals. Smooth as glass, with no coating to crack off, Monel Metal safeguards the yarn against injury from rough and chipped surfaces. Strong as steel, this solid Nickel alloy fortifies the machine against hard wear and rapid depreciation. • Monel Metal construction also brings the advantage of easy, quick and complete cleanability. As a result, colors can be changed more frequently and production therefore accelerated. • The increasing use and wide adaptability of Monel Metal to many types of dyehouse equipment is a subject well worth a few moments of your time. Consult your fabricator or write us for further information.

INC. MONEL METAL

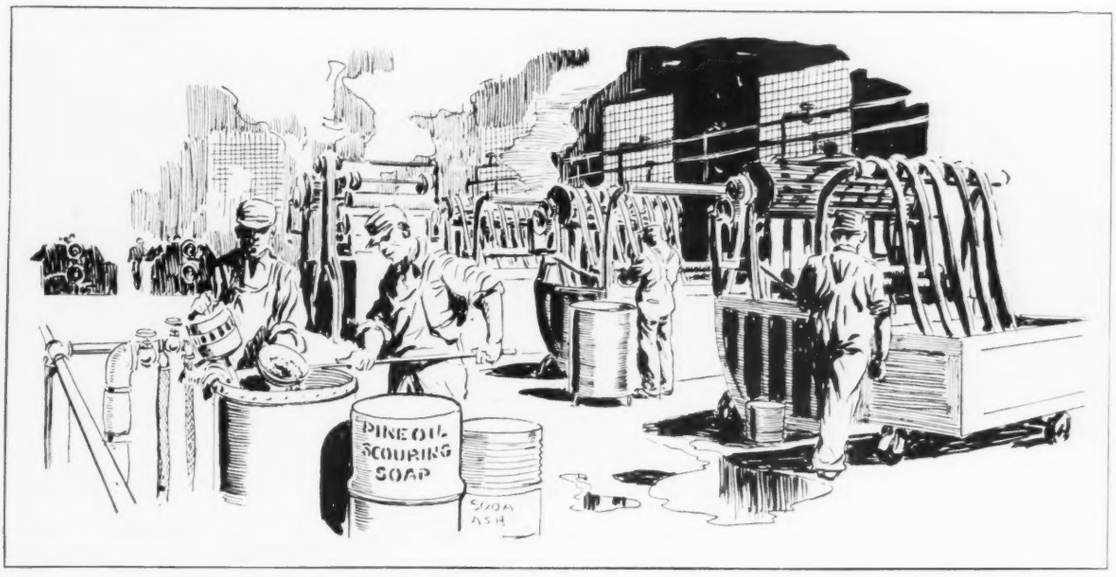
THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

A HIGH NICKEL ALLOY

MONEL METAL

NICKEL ALLOYS PERFORM BETTER LONGER

● Monel Metal is a registered trade mark applied to an alloy containing approximately two-thirds nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.



Use Scouring Soaps Containing Yarmor

Scouring soaps, made with Hercules Yarmor Steam-distilled Pine Oil by your textile chemical manufacturer, will enable you to obtain uniform results of the highest quality.

Because of their Yarmor Pine Oil content, these soaps reduce surface and interfacial tensions, loosen mineral oils, greases, and foreign matter, and hold this oil and dirt in suspension until it is rinsed easily from the fabric. This produces material with clear whites and bright colors, and tends to eliminate rancidity of material in storage.

For complete information as to how these scouring soaps will help you, consult your textile chemical manufacturer or distributor or write to us.

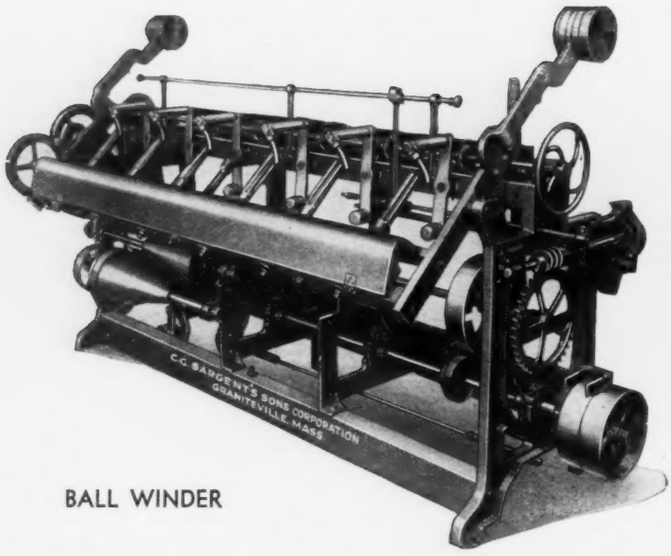
Steam-distilled Wood Turpentine
Wood Rosin
Steam-distilled Pine Oil
Alpha Terpineol
Commercial Abietic Acid
Abalyn (Methyl Abietate)
Nitrocellulose
Chemical Cotton

HERCULES NAVAL STORES

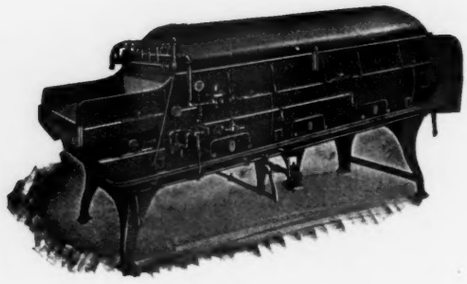
HERCULES POWDER COMPANY
INCORPORATED
995 Market Street, Wilmington, Delaware

Branch Offices...Chicago...New York...St. Louis...Salt Lake City...San Francisco

00-15



BALL WINDER



YARN
CONDITIONING MACHINE

SARGENT MACHINERY WILL MODERNIZE YOUR EQUIPMENT AND CUT MAINTENANCE COSTS...

The Sargent Line of Machinery Applicable to Cotton Mills Includes:—

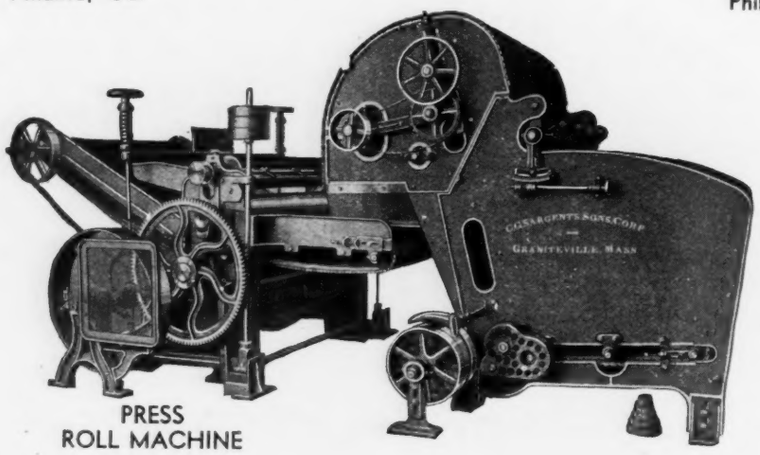
Automatic Feeders
Bagging Machines
Ball Winding Machines
Cotton Stock Drying Machines
Continuous Automatic Extractors
Cotton Rinsers
Dusting Machines
Opening Pickers
Wet Pickers
Yarn Conditioning Machines

C. G. SARGENT'S SONS CORP.

GRANITEVILLE, MASS.

Southern Agents
Fred H. White, Charlotte, N. C.
Fred Brooks, Atlanta, Ga.

R. C. Jefferson Co., Phila. Agt.
Drexel Bldg.,
Philadelphia, Pa.



PRESS
ROLL MACHINE

SARGENT

TEXTILE MACHINERY

TODAY!

IT'S

VATROLITE

SODIUM HYDROSULPHITE

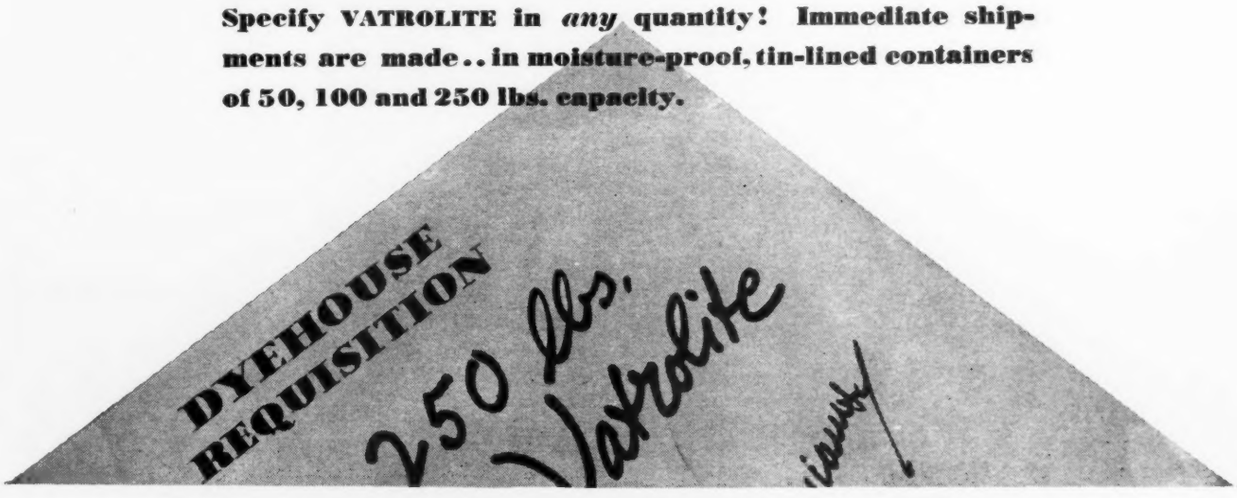
REG. U.S. PAT. OFF.

STRIPPING AND REDUCING COLOR IN THE VAT

TECHNICALLY, a SODIUM HYDROSULPHITE . . pure, full and uniform strength. Up to the Royce standard of Quality, and *performance* names it VATROLITE!

The ideal results realized in the dye-house . . the complete adaptability of VATROLITE . . are directly traceable to rigid production control and a perfectly sustained balance of dependant chemical influences.

Specify VATROLITE in *any* quantity! Immediate shipments are made . . in moisture-proof, tin-lined containers of 50, 100 and 250 lbs. capacity.



ROYCE CHEMICAL COMPANY

Manufacturing Chemists

CARLTON HILL · NEW JERSEY

NEW ENGLAND REPRESENTATIVES: RICHARD HAWORTH, Inc., 25 FOUNTAIN STREET, PROVIDENCE, R. I.

Made by the originators of DISCOLITE and VELVORAY

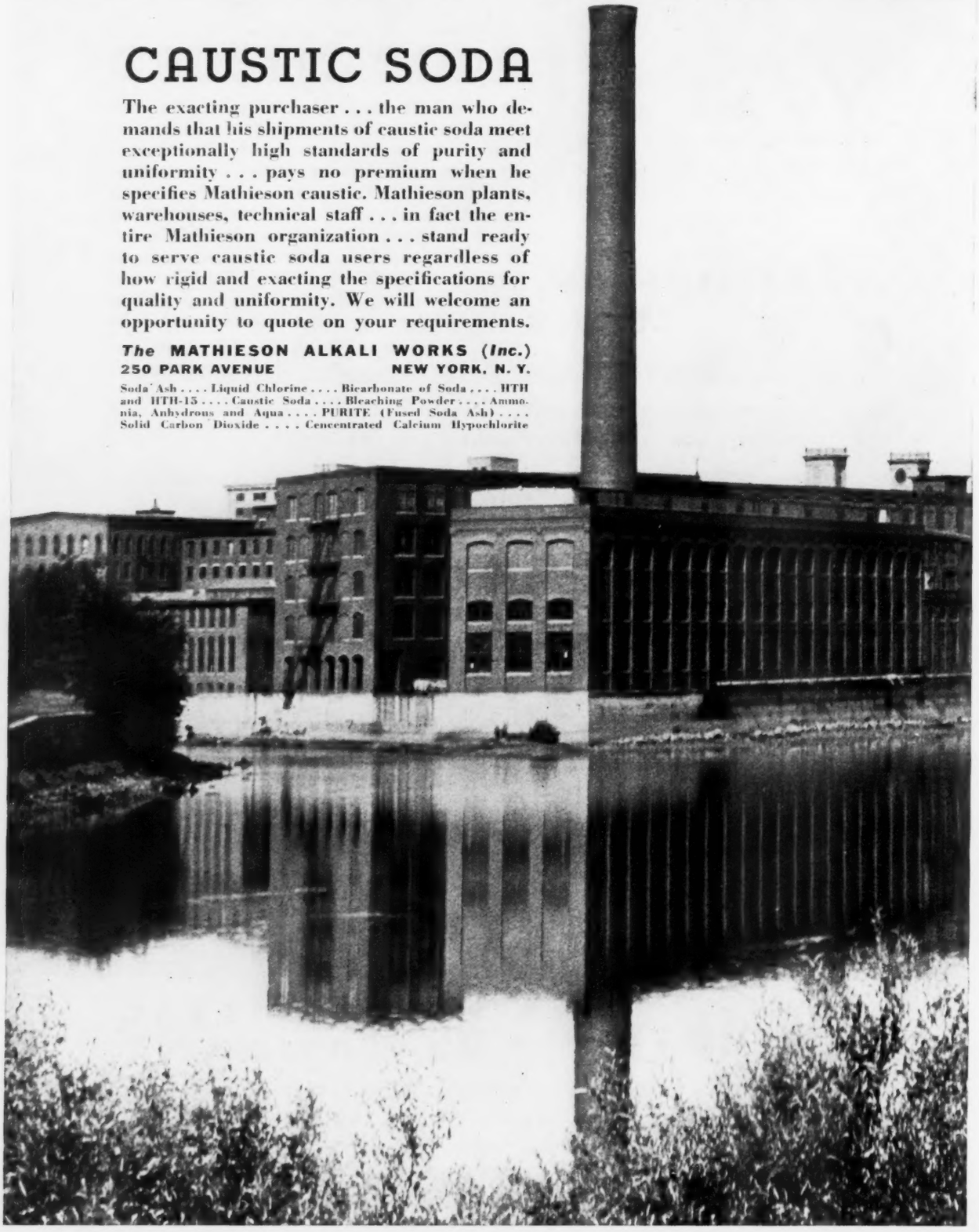
MATHIESON CHEMICALS

CAUSTIC SODA

The exacting purchaser . . . the man who demands that his shipments of caustic soda meet exceptionally high standards of purity and uniformity . . . pays no premium when he specifies Mathieson caustic. Mathieson plants, warehouses, technical staff . . . in fact the entire Mathieson organization . . . stand ready to serve caustic soda users regardless of how rigid and exacting the specifications for quality and uniformity. We will welcome an opportunity to quote on your requirements.

***The* MATHIESON ALKALI WORKS (*Inc.*)**
250 PARK AVENUE NEW YORK, N. Y.

Soda Ash . . . . Liquid Chlorine . . . . Bicarbonate of Soda . . . . HTH and HTH-15 . . . . Caustic Soda . . . . Bleaching Powder . . . . Ammonia, Anhydrous and Aqua . . . . PURITE (Fused Soda Ash) . . . . Solid Carbon Dioxide . . . . Concentrated Calcium Hypochlorite



Vol. 96 **COTTON** No. 8

August, 1932

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

Contents

General and Technical—

The Taxable Value of Mills and Other Manufacturing Properties, By Charles T. Main ---- 17
Organization, By Dunhill Marsden ---- 19
The Analysis and Reconstruction of Plain Cotton Fabrics ---- 20
Modernizing the Mill's Power Plant and Auxiliary Equipment, By C. T. Baker ---- 21
Carbon Tetrachloride and Fire Extinguishers ---- 27
South Carolina Cotton Manufacturers Convention ---- 28
Textile Research Now Organized ---- 29
Mill Findings, By Allen Jones ---- 30
Leno Weaving and Designing, Part III, By Thomas Nelson ---- 32

Current Topics—

Talk of the Month ---- 35
The General Situation in Textile Markets ---- 35
New England Mill Situation ---- 35
Cotton Weevils ---- 36
Spindles Dismantled ---- 37
Curtailment ---- 37
Railroads Versus Trucks ---- 38
Comment on the Cotton Market ---- 38
What the Southern Mills are Doing ---- 39
New Textile Equipment and Publications ---- 40
News Items With a Textile Slant ---- 44
Notes About Men You Know or Know About 48
An Old Timer Says ---- 51

How Other Men Manage—

Another Opinion on Round and Square Point Travelers ---- 55
A Handy "Kink" for Drawing Frames ---- 58
More on Mill Motor Maintenance ---- 59
Machinery Inspection ---- 60
Re-Working the Supply Room ---- 61
Another Opinion on Cockled Yarn ---- 62
More Discussion on Why Roll Leather Splits 62
Reducing Seconds ---- 64
A Discussion of Fly Frame Cones ---- 65
"Learning the Mill Game" ---- 66
Card Grindings and Settings ---- 67
Cockled Yarn Can Come from the Cotton ---- 68
Causes of Uneven Yarn ---- 69
What About This Matter of Backing Off the Doffer While Grinding? ---- 73

Knitting Section —

Silk—from the Cocoon to the Knitting Room Part I, By P. Wilson and J. L. Gross ---- 77
Causes of "Seam Peaks" in Picot on Full-Fashioned ---- 83
A Gauge for Worn Selector Fingers on Spiral Float Machines ---- 84
Wants Discussion on Soap and Chemical Test Methods ---- 84
Dyeing Cotton—Rayon Hosiery by the One-Bath Method ---- 87
Preventing Drop Stitches, Cuts, and Loops, and "Streaks" on Banner Machines ---- 89
The Knit Goods Markets ---- 93
The Yarn Market ---- 102

Published Monthly by

W. R. C. SMITH PUBLISHING COMPANY

Atlanta, Ga.

Publishers also of
ELECTRICAL SOUTH
SOUTHERN AVIATION
SOUTHERN HARDWARE
SOUTHERN POWER JOURNAL
SOUTHERN AUTOMOTIVE JOURNAL

JOHN B. SHAW, *sales manager*, 39 Grove St., Auburndale, Mass. Boston Exchange, West Newton 1031.
W. S. CUSHION, *vice president*, 506 The Arcade, Cleveland, Ohio.
JOHN C. COOK, *western manager*, Room 864, 228 No. LaSalle St., Chicago, Ill.
W. A. McGEE, *Carolina manager*, Box 1162, Charlotte, N. C.

PUBLISHED MONTHLY
ANNUAL SUBSCRIPTION—$1.00
CANADA—$1.50; FOREIGN—$2.00

MEMBER OF A. B. P.
MEMBER OF A. B. C.

EDITORIAL AND BUSINESS OFFICES
Grant Building, Atlanta, Ga.

To MANUFACTURERS BUILDING SALES ON *Worthy* PRODUCTS . . . .

Regardless of conditions, Industrial's policy has always been the maintenance of quality standards. And this is the policy being rigidly followed today!

Manufacturers use Industrial products with confidence, with the definite conviction that these are *always* dependable and will help produce reliable, attractive merchandise--the kind that builds good will and attractive volume today and in the days to come.

Premier Rayon and SPUN-LO

With the buying public and the better retailers insisting on *quality,* the opportunity is greater than ever to build sales on the basis of actual worth.

For suggestions on developing products, creating markets and promoting business, address our Trade Promotion Department. We'll be glad to cooperate.

INDUSTRIAL RAYON CORPORATION
General Offices: 9801 Walford Avenue, Cleveland, Ohio
Plants: Cleveland, Ohio; Covington, Virginia

Manufacturers of

PREMIER RAYON and SPUN-LO

COTTON

Vol. 96 August, 1932 No. 8

The Taxable Value of Mills and Other Manufacturing Properties

By Charles T. Main[1]

THIS discussion may help in connection with tax assessments on your mill properties. There seems to be no satisfactory method for determining a fair basis for taxation of industrial plants, and the suggestions herein are made in an endeavor to set up a logical method of getting a closer approximation of values for the purpose of taxation than has been used for the past few years or is now in use. . . .

At the annual meeting of the American Society of Mechanical Engineers held in December, 1897, the author presented a paper entitled "The Valuation of Textile Manufacturing Property."[2] Most of the statements which were made in that paper were applicable to other branches of manufacture, and nearly everything that was stated then is now true, except that there is at present very little or no immediate market for textile mills and some other manufacturing properties, thus upsetting our former standards of values for various purposes.

At this time of economic and industrial distress, there seems to be no satisfactory method for determining a fair basis for taxation of industrial plants and other property closely associated therewith.

Many Changes Have Occurred.

The following suggestions are made in an endeavor to set up a logical method of getting a closer approximation of values for the purpose of taxation than has been used for the past few years or is now in use.

The assessors have taken oath of office to make assessments based on a fair market value.

Prior to 1914, replacement cost less depreciation was usually considered as fair market value for most properties.

Since 1914 there have been many rapid changes, up and down, in replacement costs, the extremes of which could not be interpreted as determining market values of any permanence.

In recent years regional competition and excessive expansion, particularly in the cotton-textile industry, have caused liquidation of many properties and a diminution in value of those remaining.

With economic conditions as they are now, replacement costs less depreciation do not, in general, represent fair values for taxation purposes. Neither do prices brought in forced-liquidation sales afford a fair basis of value for similar properties if there is any possibility that these properties will be used again for profitable purposes in the near future.

What can be set up as a substitute which will be worthy of consideration and may be argued with some assurance of compromise between the owners and assessors as representing fair values for the purposes of taxation?

Starting with the year 1914 with an index of 100, there were great fluctuations of construction costs until the year 1925. During the years 1925 to 1930, inclusive, costs were fairly uniform, with an index of about 205 on the building-construction chart of *Engineering News Record*. During the years 1930 and 1931, the economic conditions of that period, with a decline in the cost of labor and materials, caused the building indext of *Engineering News Record* to drop to about 160 and that of the author's organization for mill buildings to about 170.

About April 1, 1932, one of the largest and most reliable construction companies placed the general index at 130 when referred to 100 as of 1914.

Cities and towns must have some money for conducting public affairs. The industries must not be taxed so excessively as to drive them out of existence. For the purpose of trying to arrive at a fair compromise between the owners and the tax assessors, the author would suggest the following method of procedure.

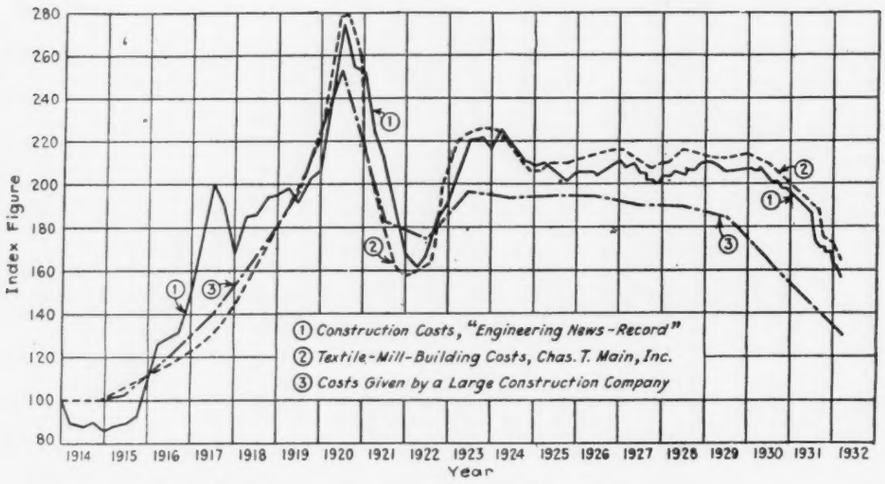
Buildings.

1. Estimate as closely as possible the replacement cost of the buildings as of April 1, 1932, or for any other date of taxation, using either previous data corrected for construction cost as of the date required, or by direct estimate.

[1]Chas. T. Main, Inc., Engineers, Boston, Mass., Past-President A. S. M. E.

[2]Trans. A. S. M. E., vol. 19 (1898), p. 119.

Contributed by the Management Division and presented at the Semi-Annual Meeting of the American Society of Mechanical Engineers, Bigwin Inn, Lake of Bays, Ontario, Canada, June 27-July 1, 1932. Reprinted by permission from the July issue of "Mechanical Engineering."



Graph Showing Cost Trends in Building Construction.

This potential value is speculative, its measure depending upon the time which will elapse before the property will again be used profitably.

Any one contemplating the purchase of such property would be obliged to estimate the length of time that the property will remain unprofitable, and what he would deduct from the estimate of value arrived at under (4) for the carrying charges for the assumed period that it must be carried.

The carrying charges would be interest, depreciation, insurance, taxes, repairs or upkeep, heating, caretaking, and administration. All of these constitute a serious burden on the property. While they cannot all be measured in percentages, it is probable that they will amount in a year to about 10 per cent of the replacement cost of most mill buildings. For one year's delay in usefulness this would mean a reduction of approximately 10 per cent of replacement cost. Some of these items could be taken directly from the books of the company.

If it seemed possible or probable that the length of time that the property would be unprofitable would be so great that the carrying charges would eat up all the estimated value as determined by (4), then there would be no value left and the property should either be disposed of at the earliest possible date by sale, or, if there is no market, the buildings should be torn down and the land revert to the community for playground or park purposes, or for any useful purpose to which it could be put.

2. Having established a replacement cost for the exact structure or structures under consideration, there may be allowances to be made for obsolescence for the following reasons:

(a) Because the building was so designed as to cost more than is necessary for the purpose to which it is put.

(b) Because of changes in methods of operation or of machinery, the buildings may not be now economical for the present occupancy or operation.

(c) Because of changes in the character of the business or its operation, there may be floor space which no longer is essential to the business and which is not useful for any other purpose.

3. After the foregoing allowances have been made, a figure is arrived at which represents the value of the buildings *if new*, provided they are being used for some useful and remunerative purpose.

There is then to be applied:

(d) Depreciation for age and wear and tear.

4. After this allowance has been made there remains a figure which would be an indication at least of the value of the buildings as they are, provided they are in use for some remunerative purpose.

Up to this point we have been dealing with items of value which are not subject to great differences in opinion. Beyond this point there is no consensus of opinion and no basis for the determination of taxable values, and because of the forced-liquidation sale of similar properties it is argued by some that there is very little value left on which to base taxes.

This same reasoning might be used in connection with a house or store which is for rent but temporarily vacant; that because there is no revenue, it has no taxable value.

5. If the buildings are not in use, or are in use for a purpose which is not remunerative, and are kept in use with the hope that at some time in the reasonably near future the business will again become profitable, there may be a value which might be called "potential value", which might be used as a basis for taxation, "fair market values" having disappeared.

Machinery.

For the purpose of illustrating the procedure in connection with machinery, let us consider the method as applied to cotton-textile machinery. The same principle will hold in connection with machinery of any other industry.

During the period since 1914 there have been great fluctuations in the prices of textile machinery, but for the past six or seven years "asking" prices have been fairly constant at about 180, assuming the index for 1914 as 100. There has not been any change in asking prices recently.

The following method of procedure is suggested:

1. Estimate as closely as possible the replacement cost as of April 1, 1932, or for any date of assessment.

2. Allow for depreciation due to obsolescence.

For the purpose of illustrating the effect of obsolescence, let us consider what changes and improvements have been made in cotton textile machinery in recent years.

The opening and mixing department has undergone a forced reorganization to a large extent, and the picking process has experienced almost revolutionary

machinery changes.

While no fundamental changes have been made in the card room, card-room machinery has been improved in many details so that machines built twenty years ago are now practically obsolete.

Long-draft spinning is an outstanding development. There is a tendency to apply similar equipment to roving.

There is further a marked tendency to the use of larger packages.

Old-style standard spoolers and warpers are obsolete today.

Slashers have been improved by new temperature and pressure controls, and in special cases by the combination of hot-air and cylinder methods into one machine.

Twisting and winding machines have been improved by the use of higher speeds and larger packages, and new types of winding machinery have been developed.

Since the development of the automatic loom there have been no changes so radical as that from the non-automatic to the automatic loom. There have been, however, many other improvements of importance which affect seriously the item of obsolescence in the weaving department.

3. After the application of the factor of obsolescense, there is to be a further reduction for depreciation due to age, wear and tear, etc.

4. The result obtained represents the value of the machinery as it is, provided it is being employed for some useful and remunerative purpose.

5. If the machinery is in use but cannot produce a profit, or not in use but standing in expectation of a more prosperous time in the reasonably near future, there may be a value which might be called "potential value", which might be used as a compromise basis of taxation.

As in the case of buildings, this potential value is speculative, its measure depending upon the time assumed which will elapse before it is again in use on a paying basis. A prospective purchaser must determine what, in his opinion, this period will be, and what he must deduct from the value previously determined for the carrying charges for the assumed period that it must be carried.

The carrying charges will be interest, depreciation, insurance, taxes, upkeep, caretaking, and some increase in the risk of further obsolescence. Some of these items are not measured in percentages, but the total can be determined approximately and will amount to about 12 per cent a year on the replacement cost.

The foregoing is illustrative of the carrying charges which are necessary for machinery in any other industry. Each industry should be treated in accordance with its individual characteristics.

Land, Tenements, and Power.

Conditions vary so greatly in different plants and in different localities that it will be necessary to give individual consideration to these and, perhaps, some other items.

Organization---Another Sermon.

By Dunhill Marsden

IT IS organization that keeps an industrial concern going. Organization marks the difference between a mob and an army. One of the major problems of management is to build an organization that will continue to operate smoothly and effectively in the absence of the directing head of the organization. If you are a mill superintendent, and the mill can't run just as well without you for a few days as it could if you were there, you haven't got an organization; you've got a mob. You might as well fire all the foremen, and do their work yourself. But no manufacturing plant is going to pay dividends with the money it saves in overseer's wages.

If a corporation has got a good treasurer, a good superintendent, and good foremen, all organized into a smoothly working managerial unit, that corporation can burn the plant down and be better off than if they had the finest equipment in the world, and couldn't run it. New machinery can be had quickly and easily; a finely working organization grows, and usually grows slowly.

Webster defines "organize"—"to arrange or constitute in interdependent parts, each having a special function, act, office, or relation with respect to the whole; to systematize; to get into working order." That definition covers it about as well as words can. An organization has interdependent parts; they all have to work together for the good of the whole, and if all the parts do not work harmoniously toward a given end, the whole thing usually falls apart.

The superintendent who has to stick around the mill all the time to keep it running, isn't much of a superintendent. Notice that I say the one who *has* to stick around. A good man sticks to his job, and is on the job constantly, but if the job demands that he go off from the mill for a day, or a week, or even a month, and the mill can't get along without him, then that mill needs a new superintendent, and needs one quick.

A real superintendent has each of his assistants trained to run his part of the job without needing any help. He has delegated responsibility, and conferred authority to meet those responsibilities as necessity arises. A foreman who has to run to the boss every few minutes isn't a foreman; he is a nuisance, and should be abated. If a man is fit to be a foreman he probably has some brains, and will use them if he isn't afraid to. A foreman's brains are all that the company wants anyway, and the better use he makes of them, the better for the company.

If the parts of a machine don't run when the machine is started up, and someone has to stand by and push them around, it is a darn poor machine, and is headed for the junk pile. If the units of an industrial organization do not all run smoothly together, without the superintendent having to stand over them to give a push here and a poke there, the organization is not worth a hoot, and probably the superintendent isn't either.

The Analysis and Reconstruction of Plain Cotton Fabrics

(All Rights Reserved.)

THIS is an elementary discussion and description of the steps necessary in the analysis of plain fabrics, as well as in the reconstruction of fabrics to sample. The matter is clearly discussed in a manner particularly designed for the student of this subject.

WHEN a fabric is submitted to the mill for reproduction, there are certain steps to follow in finding the necessary data from the cutting or sample (without destroying it) before all the facts for its reproduction are ascertained. These items are:

(1) Actual weight of submitted cloth, or yards per pound.
(2) Ends and picks per inch.
(3) Take-up of warp and contraction of filling.
(4) Counts of warp and filling.
(5) Twist, direction of, and turns per inch.
(6) Weave.

As a working example, let us take the sample of sheeting, shown in Fig. 1, which has been submitted for reproduction. Fig. 2 shows the fabric squared up by the removal of ends and picks so as to get a correct measurement. Fig. 3 shows the sample ready for weighing.

When the weight of the sample is ascertained, it is subjected to the following formula:

$$\frac{\text{Sq. inches of cloth} \times 7{,}000 \text{ grains in 1 pound}}{\text{Weight in grains} \times 36 \text{ inches in yard} \times \text{width of cloth}}$$

This procedure will provide us with the actual weight of the submitted sample, which will be used as a check when reconstructing the fabric. It also provides us with data for *Item (1)—Actual weight of submitted cloth, or yards per pound.*

Item (2)—Ends and picks. The first procedure in determining this item will be to ascertain which is the warp system. The sample is a gray cloth, so this is easily done by placing the cloth flat on the inside of a window and adjusting the pick glass. This will show the reed marks, by careful scrutiny. Another method is to remove a few ends and picks; the warp will feel harsh while the filling will be comparatively soft. Count the ends of warp a few times and average them, throwing out any number that is out of line with the rest of the numbers. The same applies to the filling. This will obviate any chance of error, owing to the cloth being distorted by handling, especially in a fabric such as sheeting, where tensile strength plays a prominent part.

Item (3)—Take-up of warp and contraction of filling. Take-up in warp is found by disengaging ends of warp and measuring very carefully, using a rule graduated to 100ths of an inch, getting the average length when drawn to a straight line, and comparing the results with the length of cloth from which the yarn was removed. The procedure will be as follows: Length of yarn—length of cloth, ÷ the difference by the length of yarn; the result is the percentage of take-up. The same formula applied in the same way will provide the percentage of contraction in the filling.

Item (4)—Counts of warp and filling. The count of the warp and the filling is ascertained as follows: Remove enough ends of warp to show enough weight on a correctly adjusted balance and apply the following formula:

$$\frac{\text{Inches of yarn} \times 7{,}000 \text{ grains in 1 pound}}{\text{Wt. in gr.} \times 36 \text{ inches in yd.} \times 840 \text{ (cotton st'nd'rd)}} = \text{Count.}$$

This item can also be found by using the yarn assorting balance.

Item (5)—Twist, direction of, and turns per inch. The direction of the twist would, in the ordinary way, be termed right or left, but as there is a difference of opinion in the trade as to what constitutes right and left hand twist, it will be more to the point to use the terms Regular and Reverse twist. In the case of single yarn, if it is held firmly between the thumb and forefingers of both hands, allowing about half-an-inch to intervene, then by turning the right hand in a direction away from the body we find the twist is taken

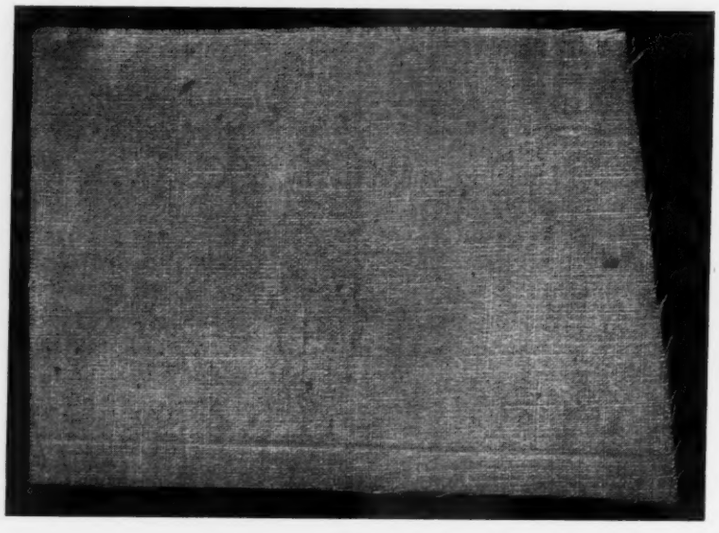


Fig. 1.

out, the twist is regular. If more twist is put into the yarn the twist is reverse. If the yarn is more than one strand (ply yarn), directly the opposite results will apply; in other words, if twist was put into the yarn when the right hand was turned away from the body it would be regular twist, which is just the opposite to single yarn. This is explained by the fact that generally single yarns are twisted one direction and when made into ply yarn the direction is reversed, which helps to set the twist.

Turns of twist are ascertained by the use of the twist counter. The procedure should be (in the case of single yarn) to set the sliding jaws to 1 inch on the bar, which will give a corresponding measurement between the jaws. (As a further precaution it is best to measure the actual distance after setting the machine.) Then disengage about half an inch of the first warp end or pick from the cloth, set the indicator on the clock at zero, and clamp the disengaged end of yarn into the center of the revolving jaws. When this is done, pull gently on the cloth so as to further disengage the yarn from the cloth structure until enough yarn length is provided to drop the yarn between the stationary jaws. Then take the cloth and yarn firmly between the thumb and forefinger and pull gently until the yarn is drawn to a straight line. Then clamp the stationary jaws. The yarn can then be removed entirely from the cloth. Turn the handle until the twist is mostly removed. Take two needles, inserting one into the yarn "as near as possible to the stationary jaws", being careful to have the fibers about evenly divided. Open up gently and insert the other needle, with a slight downward pressure on one and an upward pressure on the other, the yarn is opened up so that the needles can be moved toward the revolving jaws. When the opening of the yarn has reached this point, any twist remaining can be removed by turning the revolving jaws. Then the number of turns can be ascertained on the dial of the machine.

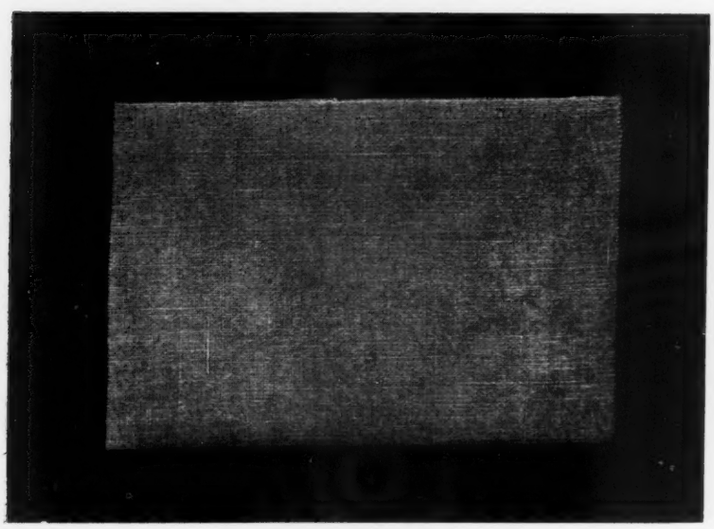


Fig. 3.

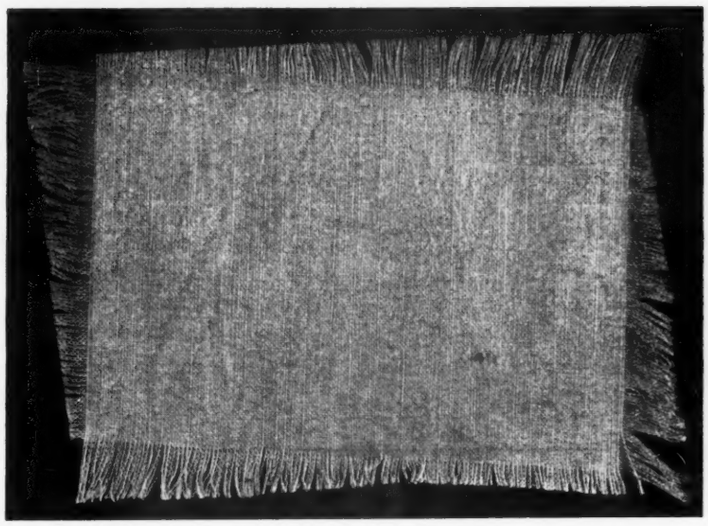


Fig. 2.

This procedure should be repeated a few times so as to strike an average. Combed yarns, it will be found, do not fluctuate very much; carded yarns are liable to vary widely owing to the twist having an affinity for the finer portions of the yarn. In the case of ply yarns, 10 inches of yarn is best to use, the twist being easily obtained, the machine being adjusted, of course, to this length.

Item (6)—Weave. Referring again to Fig. 1, the fabric is a sheeting, plain weave, consequently it can be woven on a plain loom. The weave being ascertained by picking out, the method followed being: Remove enough ends and picks to allow a small fringe on the right and bottom sides of the sample, as in Fig. 2, taking the first end, beginning at the bottom, and following its interlacings with the filling system, the weave being reproduced on point paper by designating each place where the warp crosses over the filling by means of a cross on the design or point paper. It must also be noted that the spaces on point paper represent ends and picks, the vertical spaces between the lines representing the warp system while the horizontal spaces represent the filling system, each vertical space representing one warp end while each horizontal space represents one pick.

Other items which must be obtained are the width of cloth and the make-up of the selvage, the first being provided by the customer, who states the width required, the latter in most cases being taken care of by the mill, who have, in most cases, adopted standard selvages for different types of cloth.

Following through the method previously outlined, the practical application of analysis is as follows:

Item (1)—Actual weight of submitted cloth, or yards per pound. Fig. 1 shows cutting of a sheeting submitted for analysis, preparatory to its reproduction. Fig. 2 shows the same cutting squared off by removing ends and picks from each side until each thread follows through the full length

of the cutting. Fig. 3 shows the edges clipped as close as possible to the cloth, with it ready for weighing. The weight being 7.35 grains. The cutting, when measured, was found to be 3x2 inches, the width of the cloth desired by the customer is 39-inch gray. These items are assembled into the formula as follows:

$$\frac{3 \times 2 \times 7{,}000}{7.35 \times 36 \times 39} = 4.07 \text{ yards per pound.}$$

Item (2)—Ends and picks per inch. The first procedure will be to ascertain which is the warp system, in this case the warp is a deal more harsh than the filling, running parallel to the 2-inch measurement. Counting the threads a few times and averaging, it is found that there are 80 ends per inch.

Counting the picks, and averaging them, shows the same result, or 80 picks per inch, showing that the sley and picks are 80x80, which, in mill language, is termed 80-square cloth.

Item (3)—Take-up of warp and contraction of filling. The cloth, it was noted, was 3x2 inches, the 2-inch measurement constituting the warp system. Removing a few of the warp ends, measuring them carefully when pulled to a straight line, and averaging the lengths, it is found that the warp ends taken from 2 inches of cloth average 2.20 inches in length. The take-up is found as follows.

$$2.20 - 2 = .20$$

$$.20 \div 2.20 = 9 \text{ per cent warp take-up.}$$

Using the same procedure with the filling system, the length is found to average 3.28 inches when pulled to a straight line. and as these threads are taken from 3 inches of cloth, the problem is as follows:

$$3.28 - 3 = .28$$

$$.28 \div 3.28 = 8\frac{1}{2} \text{ per cent contraction.}$$

Item (4)—Counts of warp and filling. Removing 100 ends from the warp system [which average 2.20 inches as found under Item (3)], weighing them on the grain scales, they were found to weigh 1.9 grains. The formula for ascertaining the count is as follows:

$$\frac{100 \times 2.20 \times 7{,}000}{1.9 \times 36 \times 840} = 26.8\text{s count of warp.}$$

This count is from gray cloth. Consequently, this includes size which was added during slashing. This approximates 5 per cent of the weight of yarn in most cases. It will follow that the allowance must be made in the warp count to offset this additional weight, so the calculation is as follows:

$$26.8 \div .95 = 28.2\text{s, count of warp before slashing.}$$

This count is satisfactory in theory, but the man initiated into cotton mill procedure understands that in the spinning of any yarn a certain fluctuation will occur around the actual count of the yarn, and it will be safe to assume that 28s was the actual yarn.

The filling count was found by the same method, omitting the allowance for size. In a previous calculation, the filling removed from the cloth averaged 3.28 inches. Removing 70 of these they were found to weigh 1.2 grains. The calculation is as follows:

$$\frac{3.28 \times 70 \times 7{,}000}{1.2 \times 36 \times 840} = 44.29\text{s count of filling.}$$

This result will be treated the same as the warp system. Allowing for spinning fluctuation, we consider the count as 44s.

Item (5)—Twist in warp and filling. The twist in warp and filling, applying the previous explanation, was found to be in the regular direction. The turns per inch in the warp being approximately 25, while the filling had 24 turns per inch—these being approximately standard for the counts involved.

Item (6)—Weave. The weave of the cloth is plain. The first end being over the first pick, under the second, over the third, under the fourth, etc. The second end is under the first, over the second, under the third, over the fourth, etc.; the third thread interlaces the same as the first, the fourth thread the same as the second, etc.

In summarizing the findings of this analysis, then, we find the following results:

Yards per pound of submitted cutting, 4.07.
Ends per inch, 80.
Picks per inch, 80.
Take-up in warp, 9 per cent.
Contraction in filling, 8½ per cent.
Counts of warp, 28s.
Counts of filling, 44s.
Direction of warp twist, regular.
Direction of filling twist, regular.
Turns of twist, warp, 25.
Turns of twist, filling, 24.
Weave, plain .
Customer's desired width, 39 inches.
Selvage, none on sample.
Regular selvage used, 2—4—7, which means 2 ends in eyes, 4 ends in dent, 7 dents, or 28 ends per selvage.

The next problem is to reconstruct the cloth, so as to give the above results (especially the yards per pound) in the same construction, yarns, etc.

Reconstruction of a Plain Cotton Fabric

The reconstruction of a fabric is made possible through the aid of data collected in the analysis of the fabric. The data is used in finding the following items, which are numbered according to procedure:

(1) Total dents required.
(2) Reed number.
(3) Reed width.
(4) Total ends required.
(5) Weight of warp.
(6) Weight of filling.
(7) Yards per pound.

Item (1)—Total dents required. Referring to the analysis, we find the width of the cloth is 39 inches, and the sley (or ends per inch) is 80. These being multiplied together and divided by the ends in dent:

$$\frac{39 \text{ (width of cloth)} \times 80 \text{ (ends per in.)}}{\text{2 ends in dent}} = \text{1,560 dents required.}$$

The ends in the dent being governed by the sley and the counts of warp yarn, the dents must be large enough to allow a knot in the yarn to pass through easily, then there are limits (in cotton) regarding dents per inch (56 being the finest in the experience of writer). Consequently, with 80 sley and 28s warp yarn as factors, 2 in dent will be practical.

Item (2)—Reed number. The reed number is based upon the contraction in filling, which shows definitely the shrinkage from reed to gray cloth. Considering the reed width as 100 per cent, and deducting the percentage of filling contraction, one factor is found. This, with the total dents and gray width, form the following calculations:

100 per cent — 8½ per cent = 91.5 per cent.

$$\frac{1560 \text{ (total dents)} \times 91.5 \text{ per cent}}{\text{39 inches gray width}} = 36.6 \text{ or } 37 \text{ Reed.}$$

Regarding this reed, it is not a regular number. It would in all probability have to be made specially for the job. The practical procedure to follow would be to use the nearest reed on hand. In the mill where the reeds are numbered according to the dents per inch, a 37 dent reed would be used. It will also form the basis of our calculations.

Item (3)—Reed width. The reed width is found as follows:

1560 (total dents) ÷ 37 (reed number) = 42.16 inches.

Item (4)—Total ends required. The total ends required are found by two methods, depending upon whether ply or single yarns are used in the selvage. In the case of single yarns this is arrived at as follows:

Total dents 1560 — 14 dents in both selvages = 1546 dents inside selvage.

1546 × 2 ends in dent = 3092 ends inside selvages
28 × 2 = 56 ends required for selvage
3092 + 56 = 3148 ends required

In the case of two-ply selvages, the ends inside the selvages are arrived at as above, and the ends required for the selvage are shown *as a separate item* owing to the fact that these ends are generally run from a creel behind the slasher or taken from selvage spools in the loom. Consequently they are not considered in the warping calculations.

Item (5)—Weight of warp. The weight of warp is found by dividing the total ends (3148) by (100% — 9% take-up) × 28s warp count × 840 cotton standard as follows:

$$\frac{3148}{.91 \times 28 \times 840} = .1470 \text{ pounds per yard}$$

In gray cloths, 5 per cent is added to the weight for size = .0073.

Item (6)—Weight of filling. The weight of filling is found by multiplying the picks per inch, 80, by the reed width, 42.16, and dividing the product by counts × 840, as follows:

$$\frac{80 \text{ picks} \times 42.16 \text{ reed width}}{44\text{s filling count} \times 840} = .0912 \text{ pounds per yard.}$$

Item (7)—Yards per pound. This is found by adding the results of Items (5) and (6), and dividing the result into one pound. .1470 lb. warp per yd. + .0073 lb. size per yd. + .0912 lb. filling per yd. = .2455. 1 ÷ .2455 = 4.07 yards per pound.

It will be noticed by comparing the yards per pound as found in the analysis that the results above are identical. This seldom happens, the designer considering anything within reasonable proportions to the original weight satisfactory.

Groping Blindly.

AN ARTICLE recently appeared in one of the magazines portraying the tragic conditions in the wool industry, which read so similar to the conditions in the cotton textile industry. The author indicated that these tragedies had occurred largely from two reasons, ignorance and lack of co-operation. There is ignorance manifested because there is no evidence that the industry has taken into consideration any of the style changes, or changes in living conditions brought about by inventions and devices that have largely changed our ways of living.

The older people become the more conservative they are in their thinking and in their habits of life. The older that industries are the more conservative they are in their operations. The cotton and woolen industries are perhaps the oldest industries in the world and that may account for their rigidity.

These industries were born in individualistic environments and for a long period of years have been able to sustain themselves directed by an individualistic program. It is extremely difficult for them to realize that invention and progress have made the individual communities of the world close neighbors, even conflicting neighbors, to such an extent that co-operation is now absolutely necessary.

Some one in describing this lack of co-operative ability aptly said that those who are in charge of the industries at the present time are graduates of the old school and are intensely loyal to their alma mater. In the cotton-textile industry, during the last few years, a most intensive educational campaign for co-operation has been carried on, the industry is more intelligent today that it has ever been and yet there are sufficient conflicting interests to prevent effective results from the purposeful plans outlined.

The cotton-textile industry has been heralded as one of the industries to be a leader in emerging from the economic distress. For many months it had every indication of successful accomplishment, but the everlasting philosophy of the old school of individualism never ceased sounding its familiar phrases until it seems that the morale of those in the vanguard is weakening.

Modernizing the Mill's Power Plant and Auxiliary Equipment

By C. T. Baker
Consulting Engineer, Atlanta, Ga.

MONEY made in the power plant is just as useful as that made in manufacturing. Often, as Mr. Baker points out here, a manufacturing operating executive is inclined to overlook the possibility of economy and greater efficiency in the steam production and transmission—when there frequently lie there great opportunities for savings. This article will direct your thought toward familiar features of the power plant and transmission equipment, and will, we hope, cause you to think seriously along the lines discussed . . . . .

THE idea that it pays to modernize and to break away from obsolete equipment is oftentimes a difficult one to get across to many operating executives in the textile industry. Too often, such executives see only the items of first cost or capital expenditures and fail to evaluate properly the possible savings in operating costs and thereby pass up opportunities for materially reducing the cost of production. When it can be conclusively shown that savings in operating costs may be made within a few months or a few years that will completely amortize the capital investment required to modernize a plant or to recondition one that is in bad physical condition, it should not call for a special act of Providence to bring about the necessary or expedient changes.

Obviously, the owner or manager cannot be criticized for demanding proof in advance that money spent for improvements will, within a reasonable period, be returned in the form of savings over existing operating costs and in fact he should insist upon absolute proof in each instance. Fortunately, however, intelligent analysis of a given plant or group of plants made by those competent to analyze and to obtain the facts in advance, will enable the manager or owner to decide upon the correct plan to follow. Guess work and rule-of-thumb methods may be entirely eliminated from the picture since such elements of chance need no longer be incorporated in any well directed scientific investigation of present-day problems.

Pyrometer for stacks, breechings, etc.
Photos, courtesy Taylor Instrument Companies and Ilg Electric Ventilating Company.

Cost of Producing Steam.

The idea prevails in certain quarters that the cost of producing steam in a textile mill is not a factor calling for serious consideration. The remark is frequently heard that the cost of boiler fuel is such a small percentage of the total manufacturing cost as to be of little or no concern. To those holding such views it will be surprising to learn that the cost of producing steam is, in a great many plants, anywhere from 10 per cent to 25 per cent greater than is justified regardless of whether or not such costs are a small percentage of the total manufacturing costs in any given mill. This statement is not based upon superficial evidence but, on the contrary is based upon actual investigations that have been made to develop the facts.

To improve the efficiency of many boiler plants does not call for the expenditure of large sums of money; this is another interesting fact developed as a result of careful analysis of several mill plants. Usually, low overall boiler and furnace efficiency is the result of one of two conditions or a combination of the two. These are (a) improper boiler plant operating methods and lack of proper boiler plant maintenance, and (b) obsolete boiler plants.

Improper Operating Methods.

Under the general head of Improper Operating Methods may be cited: improper firing, no effort to control furnace draft as load conditions change, failure to properly maintain the boiler brick work in good condition, failure to keep the settings tight so as to exclude the entrance of cold air, and, in the case of water tube boilers, failure to properly maintain the baffles. It frequently happens also that coal unsuited to a given boiler plant installation is used, generally because of price, which usually costs more in the end because of low furnace efficiency due to incomplete combustion as well as other losses such as heavy clinkering causing heavy furnace maintenance expense, etc.

It is not at all difficult to hold the losses resulting from the causes named to a minimum. All that is required is for some one with a little authority and a knowledge of correct boiler plant management to see to it that such conditions are eliminated.

A checking up of one large boiler plant a few months ago which was found in a deplorable condition as regards operating and maintenance procedure, disclosed a preventable fuel loss of nearly 15 per cent. The boiler brick work was badly cracked, there were no dampers for draft control, the exhaust steam feed water heater was out of commission and all of the hot water returns from the mill were going to the sewer.

It cost approximately $75.00 in cash outlay to put

the house in order which netted a saving of slightly over $50.00 per month. No excuse other than that of laziness, ignorance or indifference, can be ascribed to such conditions. Fifty dollars per month may represent a small percentage of the total manufacturing cost, but why waste it?

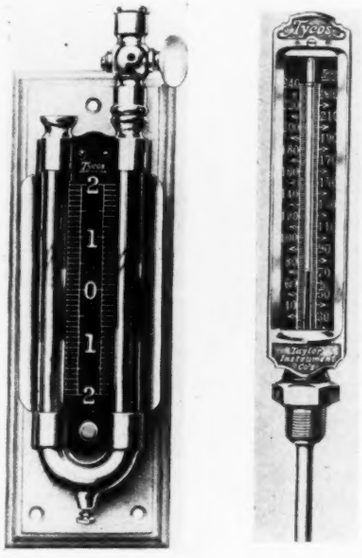
In another plant the water evaporated per pound of coal as fired was raised from 6½ pounds to 8 pounds by simply closing the cracks in the boiler settings and putting the neglected dampers to work.

Boiler Room Accessories.

When considering the question of maximum boiler room efficiencies it should be remembered that best results are not possible without certain equipment that may be used as a guide to indicate just what is taking place and just when a change in the method of handling the boilers is expedient.

It is recognized of course that the average mill cannot afford an investment in boiler room accessories comparable to the practices in vogue in the large central station power plants, since under the conditions prevailing in the average mill as regards installed boiler plant capacity, character of steam demands and total annual fuel costs, investments in equipment such as are usually found in large central station plants would not pay a return. However, there are comparatively inexpensive instruments that may be installed in the average mill boiler plant that will, if properly used, pay for themselves in a very short period enabling the operators to properly control steam production.

A few of these instruments are as follows: Mercurial thermometers, for indicating boiler feed water



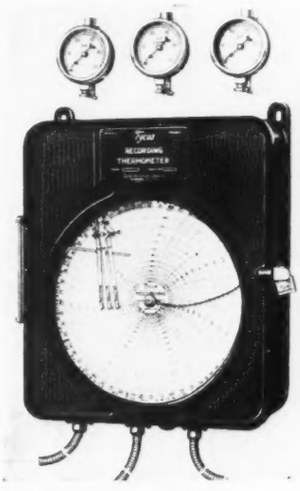
Left, draft gauge; right, industrial type straight thermometer . . . . . .

temperatures, CO_2 recording instruments for indicating the percentage of CO_2 in the flue gases, and pyrometers for indicating the temperature of the flue gases leaving the heating surfaces of the boilers. Some operators do not consider that a knowledge of feed water temperatures is essential to economy, however, when it is remembered that for each 11 degrees the feed water temperature is raised by exhaust steam or hot condensate returns from any source, that ordinarily would go to waste, a net saving of 1% in the fuel consumption is effected, a different picture is presented.

The Draft Gauge.

Still another valuable instrument when properly used and which is not costly to install is the draft gauge.

For each boiler installation there is an optimum furnace draft for different fuels and different loads or steam demands and unless some means are provided for indicating what the draft is or how draft values may be changed to meet changing conditions,



Three-pen recording or recording and controlling temperature or pressure device . . . . . .

fuel waste is inevitable.

Simple, yet accurate, gauges such as will fully meet the average boiler plant requirements in textile mills may be obtained and will pay for themselves in a very short time if properly used.

The CO_2 recorder is another inexpensive instrument that will, when properly used, earn handsome returns on the investment. The only way of accurately gauging the amount of excess air entering the boiler setting is to provide means for indicating or recording the CO_2 content of the flue gases passing from the boiler. For example, if the CO_2 content is, say only 8 per cent, the preventable fuel loss is approximately 9 per cent. If now, conditions are improved, and the excess air is reduced to a reasonable amount and the CO_2 content is raised to, say 13 per cent, the preventable fuel loss will be reduced greatly and in fact will be only about 2 per cent.

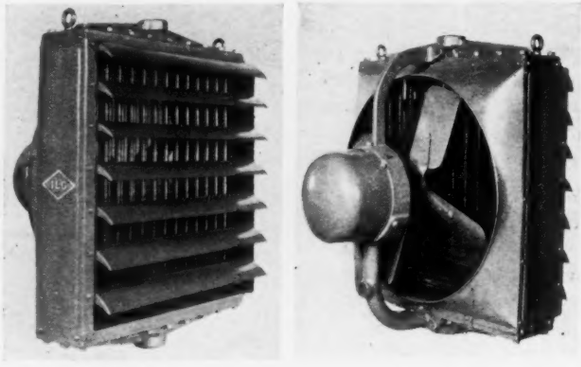
Equipment for Keeping Heating Surfaces Clean.

It is evident that if the management is interested in modernizing for profit, they can well afford to start with the boiler plant and install a few simple, inexpensive instruments, as mentioned, since every dollar so invested will pay a handsome return and enable the entire investment to be amortized in a few months time.

Many boiler plants operate with very high stack temperatures simply because no effort is made to keep the boiler free of scale or to properly and regularly remove accumulations of soot from the tube surfaces.

If the temperature of the flue gases leaving the heating surfaces or boiler uptake are in excess of 500 to 525 degrees where the boilers are not being operated under overload conditions, it may be taken for granted that valuable heat is being wasted.

Unless proper facilities are provided for blowing soot and fine ash from the fire side of the tubes, and such apparatus used at least three times during any 24-hour operating period, stack temperature will be abnormally high. Generally also where water conditions are bad it will pay to install water conditioning apparatus for removing scale forming materials from the boiler feed water.



Front and rear view of IIg type of unit heater.

In one plant operating two 300-h.p. water tube boilers, the water conditions were so bad as to require the cleaning of one boiler every ten days to two weeks, and even then, scale deposits in the tubes were so heavy as to prevent anything like efficient steam production. After the installation of a water-treating plant, costing $3,000 installed and ready to operate, the boilers were operated from three to four months without cleaning and even then all that was necessary was to wash out the drums and tubes with a fire hose and the boiler was ready to close up and go back into service. This not only saved a great amount of fuel but eliminated the cost of extra labor for boiler cleaning.

The total cost of the investment was saved in two and one-half years. If now we consider this investment in its proper light it is evident that it represents the application of modern equipment to an existing boiler plant that has paid for itself in a comparatively short period by raising the overall boiler plant efficiency as well as the cost of boiler maintenance to say nothing of adding years of life to the two boilers in question.

Are the Steam Traps Modern or Obsolete?

Many processes in the textile industry call for the use of steam aside from the usual steam heating requirements, such as slashers, water heating, drying, etc. If the hot condensate from these processes is allowed to go to waste as is all too frequently the case, the coal pile suffers.

In some mills steam traps of early vintage are still in service, while in some instances the writer has discovered that no traps are used, in which case the condensate outlet is controlled by an attempt to adjust a stop valve on the outlet connection. If the traps in use are in bad repair, permitting steam to blow through continuously, or if they are not suitable to the service requirements, they should by all means be replaced with modern traps or a size, type and capacity that the service demands.

All traps should be provided with test valves so as to permit of testing for leaks and, also, should be provided with full size by-pass connections to permit of repairs at any time without interrupting service. All trap discharge should be returned to the feed water heater or tank so as to be available for boiler feed. Do not waste this heat. It will pay to select new traps carefully. Advise the trap manufacturer the steam pressure to be used, and as nearly as possible the weight of condensate to be handled per hour in order that a trap suitable to the conditions may be supplied. The writer has observed that many mills continue to use steam traps that have been obsolete for years. This is a serious mistake since modern traps will not only insure uniform temperatures but will invariably pay for themselves in steam saved in a few months.

Obsolete Steam Heating Systems.

Since the advent of the unit heater for heating service in factories, mills and other industries, great savings in fuel have been effected by their use. Such heaters are particularly adapted to the use of live steam and may be located at any desired place in the rooms to be heated and out of the way so as not to occupy valuable space. A great deal less heating surface in square feet is needed for a given heating load on account of the much greater heat transfer per unit of surface than obtains with the usual or orthodox steam heating coil. Each unit heater is equipped with an efficient fan that insures low power consumption as well as uniform air circulation in the space to be heated.

Cost of Electric Power.

In some mills the monthly power bills are often quite large. There may be several reasons for this, such as over size induction motors that operate at low efficiencies, low power factor, line shafting in bad condition, thus exacting a heavy toll in friction losses, low power factor and in some cases low voltage at the motor terminals due to power circuits that are too small in cross-sectional area.

Obviously the remedy for defective shafting and hangars is complete reconditioning and in this connection it will frequently pay to junk old style bearings and install the modern roller or ball-bearing type.

Some years ago the writer found that the friction load of the belts and shafting in a flour and feed

mill was, by actual measurement of current input, 30 per cent of the total power requirements when the mill was operating at full capacity. A measurement of the power input of the individual motors will indicate whether or not the machines receiving power have been over motored to the extent that the drive is inefficient and therefore wasteful of electricity.

As to low power factor, this is often a serious matter and it is not at all unusual to save thousands of dollars annually in power bills by installing power factor corrective equipment. Each installation of course calls for a study of conditions to determine, first, what, if anything, may be saved by power factor correction and if so what particular equipment is the best suited to the local conditions, whether synchronous motors, static condensers, capacitators or other apparatus offers the economical solution.

Probably one of the greatest opportunities for modernization, while insuring immediate returns, will be found in a power survey to determine how best to improve wasteful low power factor conditions.

The author has pointed out many things that are possible in the way of plant improvements in the textile industry and if those who are in earnest in wanting to reduce the cost of doing business will give serious thought to these possibilities and take steps to get the facts, they will be abundantly rewarded by the savings effected providing of course that they are willing to follow through after they have learned, "what they must do to be saved".

Carbon Tetrachloride and Fire Extinguishers.

In an article on textile penetrants and wetting agents, in the April 1932 issue of COTTON, in listing the various solvents, etc., the statement was made that "carbon tetrachloride is an excellent fire extinguisher". This chemical was mentioned in listing the various solvents, and was not discussed further, but attention has been called by George E. Ferguson, of the Pyrene Manufacturing Company, that this statement is indefinite and perhaps misleading, and we are glad to quote from Mr. Ferguson's comments, to correct any misapprehension which might have been gained from this statement, as follows:

"Often we read of the advice—'carbon tetrachloride is a very excellent extinguisher'. Nothing could be further from the truth if we accept this bald statement. The proper application of carbon tetrachloride, with the proper means of application, makes a very efficient and acceptable extinguisher. What does this mean? It means that through careful study and after years of experience, starting with the knowledge of the action, in a chemical and physical sense, that there was a chance of utilizing carbon tetrachloride in this capacity, men who have been properly prepared educationally have experimented and developed a series of devices which have been particularly designed to utilize carbon tetrachloride, or rather its modified form, so that it has become efficient and highly useful as a fire extinguisher when handled as directed in the device designed to dispense it.

"The mechanical construction, the materials of construction and their compatability with the extinguishing fluid, have all been carefully worked out so that the combination will give most acceptable and satisfactory service when required.

"Some of the problems which had to be met with and solved are of interest. In the first place, picture a machine, even a machine soaked with oil, which contains moving parts and which is to be hung on a wall or kept on the dashboard of a motor truck and which may never be used for a year or five years and which must be instantly available and must function perfectly, mechanically when needed. Do you know of any such machine other than a fire extinguisher which is required to meet such a usage? The movable parts of the extinguisher are constantly immersed within a liquid, yet no electrolysis must take place, no corrosion must be possible, no deterioration is permissible, irrespective of the time the extinguisher is not subjected to use.

In the assembling of such an extinguisher, soldering operations are required. The problem of soldering without permitting corrosion from the soldering flux is a problem that has to be overcome; this has been solved; no other soldering operation with which the writer is acquainted requires this precaution.

"The liquid used in extinguishers of this type must be carefully treated to render it compatable with the extinguisher parts and at the same time not detract from its fire extinguishing qualities.

"When the extinguisher is sold, advice is given on the label as to how it should be treated, how it should be refilled and how it should be used. One of the most important items of warning has to do with the introduction of water or of liquid containing water or moisture, yet this warning is constantly being disregarded, with the result that the chemical reacts with the water or moisture,creating an acid condition which immediately attacks the moving parts—yet, this very thing happens time after time and the extinguisher is condemned and, what is worse, dependence is placed upon an object of protection which has been, through gross ignorance, ruined and made worse than useless.

"Statements such as that that 'carbon tetrachloride is an excellent fire extinguishing fluid', being read by a zealous purchasing agent who has a purchase order on his desk for liquid to refill extinguishers which have been used, may cause him to buy carbon tetrachloride on the open market instead of the liquid which has been designed for use in the extinguisher by its manufacturer, with the result that extinguishers are ruined and made useless, protection is forfeited, and two dollars and seventy-five cents may be 'saved' on the charges.

"A cake of soap is designed to be used as a cleaner, and the man who uses it on the bearings of his automobile as a lubricant will come to grief. It costs less and it feels slippery, but it is not designed to lubricate bearings. Neither is a can of tetrachloride, which is sold as a cleaner, designed to be used in a fire extinguisher, and the fire extinguisher liquid is not designed to be used as a cleaner."

S. C. Cotton Manufacturers Hold Convention in Asheville

Tax Problems and Other Subjects Discussed; Marshall Beattie Succeeds Nicholson as President . . . .

THE annual meeting of the Cotton Manufacturers Association of South Carolina was held at the Grove Park Inn at Asheville, N. C., on July 8th and 9th. The meeting was opened with a banquet, with W. S. Nicholson, president of the Association, acting as toastmaster. Honor guests of the occasion were Irving Southworth, president of the National Association of Cotton Manufacturers; B. B. Gossett, president of the American Cotton Manufacturers Association; W. G. Query, chairman of the South Carolina Tax Commission; and George A. Sloan, president, Cotton-Textile Institute.

One of the features of the banquet was the presentation of a cotton fashion show by the Cotton Textile Institute under the direction of Mrs. Thelma Roberts Campbell. The banquet address was delivered by Dr. H. N. Snyder, president, Wofford College, who appealed to the leaders in industry to have confidence in the future, to accept conditions as they are, and to build for the future.

Wm. P. Jacobs, Secretary . . .

The business meeting held Saturday morning was also presided over by President Nicholson. His address discussed many of the problems facing the industry; told of the work of the Association during the past year; and offered suggestions for the conduct of the Association in the future.

Chairman W. G. Query of the state tax commission discussed the tax situation in the state, with particular reference to its application to the textile industry. He urged a greater tax consciousness and called upon cotton manufacturers to take the lead in an effort to encourage economies in government, and a subsequent reduction in the tax load carried by industry.

William P. Jacobs, secretary of the Association, offered his report in which he outlined the work of the association and presented an analysis of the tax problems of the industry. He offered twenty-two definite suggestions for the preparation of a tax appeal.

Several of the active committees of the association made reports and the general counsel, T. Frank Watkins, made a legislative report. Resolutions were adopted on the death of Alex Long, of Rock Hill.

The following officers and directors were selected for the coming year: President, S. M. Beattie; vice-president, C. M. Bailey; and secretary, William P. Jacobs. These officials, with the past presidents, and the following, compose the board of directors: C. B. Hayes, H. A. Ligon, W. S. Montgomery, L. O. Hammett, Alfred Moore, and E. F. Woodside.

Cotton Textile Party Platform Outlined By Sloan

At the annual convention of the South Carolina Cotton Manufacturers' Association, in Asheville, N. C., George A. Sloan, president of the Cotton-Textile Institute, and "delegate-at-large from cotton growing and cotton manufacturing States," presented a platform for the Cotton-Textile Party reading as follows:

Platform of the Cotton Textile Party

We, in convention assembled, dedicate ourselves anew to the re-establishment of prosperity for the all-pervasive cotton industry of America. The supremely important problem that challenges our party is the restoration of cotton to its rightful place in the sun. To that task we pledge all that our party possesses in capacity, leadership, resourcefulness and ability.

Plank I.—Repeal

We pledge ourselves unconditionally to work for the repeal of those forms of prohibition that impede the further increase of cotton consumption.

Plank II.—Relief

We believe in the relief of sweltering American manhood and to that end we are determined to see every man enjoying the comforts and economy of cotton wearables, to-wit:

Cotton Clothing—Summer suits of crashes, gabardines, seersuckers, tropicals, slacks and sports trousers of corduroys, crashes, duck and striped twill.

Cotton Beach Wear—Swimming trunks of gabardine, terry, ticking, terry cloth and beach robes.

Cotton Men's Wear—Shirts, neckties, underwear, hats, shoes, hosiery and handkerchiefs.

Plank III.—Industry

We recommend throughout our industry the adoption of the following uses for cotton:

1. Cotton fabric belting.
2. Cotton baling materials for the shipment of yarn and piece goods.
3. The delivery of starch and other textile supplies in cotton bags.
4. Cotton uniforms for mill operatives.
5. Cotton mill baskets.
6. Preference to cotton products in mill stores' promotions.

Plank IV.—Agriculture

We resubmit for the consideration of the cotton farmer the substitution of cotton fabric for other material now commonly used for covering baled cotton. We also recommend that the use of cotton be encouraged in the following ways:

1. Cotton bags for fertilizers, seeds and supplies.
2. Cotton tarpaulins as covers for farm machinery, for truck tops, and cotton covers for shade-grown crops.
3. Cotton bags for harvesting and for marketing farm crops.

Plank V.—Public Works and Improvements

It has been demonstrated that there are large potential markets for cotton in connection with the expenditure of public moneys for construction and maintenance of public works and institutions. We particularly recommend the uses set forth herewith:

1. Cotton fabrics for highway construction.
2. Full-length 108-inch sheets for hospitals and institutions that those confined therein may enjoy the peace and comfort of those private households where domestic discord is no longer occasioned by short sheets.
3. Delivery of commissary supplies in cotton bags.
4. Cotton clothing for residents and attendants in public institutions.

Plank VI.—Campaign Activities

Believing in the principle that Heaven helps those who help themselves, we pledge ourselves to issue all campaign literature and to conduct all campaign correspondence on cotton cloth stationery.

The Cotton Textile Party faces the future with courage and the confidence that the principles and practices it has herein enunciated will command the interest and support of all who have at heart the welfare of the nation and the cotton industry.

Textile Research Now Organized

THE term "research" is frequently mis-applied and mis-used, particularly in connection with textile work. In its true conception, however, it offers a great field for textiles, which has in many respects scarcely been touched. In this article is given a discussion of the two leading agencies which have been set up—the United States Institute for Textile Research, and the Textile Foundation—and it urges more active interest in them on the part of mill executives . . . . . .

ORGANIZED effort in place of haphazard development, planned research as the basis of industrial progress, is the coming order. The evidence is all around. The firing line of American industry is being shifted rapidly into the research laboratory, says E. J. Kulas, president of the Midland Steel Products Company. "The laboratory is no longer merely an aid to competition—it *is* competition. This will become increasingly evident in the years ahead, when every important manufacturing enterprise will find it expedient to have a research laboratory, as an adjunct to sales."

Here is a challenge to the textile industry, which even in recent years has been charged with indifference to research. The four research associations for the British textile industries are reported to be expending from $100,000 to $500,000 a year individually for scientific research. General industry in the United States is expending up into the hundreds of millions annually for research. Many concerns in other industries regard one per cent of gross sales as a fair minimum for the purpose. And many can trace their success today almost entirely to this expenditure.

These comments are pertinent to recent activities calculated to bring the textile industry of this country into line with other manufacturing groups. The Textile Foundation, with headquarters in Washington, made public in April twenty awards for research fellowships and scholarships, principally fundamental and largely recommended by the United States Institute for Textile Research, Inc. The substantial progress which has been made the past two years toward a sound program of scientific research for the textile industry was the subject of a meeting in New York, on May 4, to welcome Hon. Francis P. Garvan, president of the Chemical Foundation and a leading exponent of scientific research, as new head of the Institute.

Textile manufacturers cannot profitably overlook the combined services which these two organizations are offering to the industry. The foundation, created in 1930 by act of Congress to administer a fund of $1,300,000 secured from the Textile Alliance of war days, has been applying the income for scientific and economic research. The Institute, in process of formation while the bill authorizing the Foundation was pending, is a private co-operative, non-profit organization planning to raise a foundation fund for fundamental research, to be administered by a self-perpetuating board of trustees. The two are separate and distinct, serving supplementary purposes. As indicated, the Institute has already co-operated in the program of the Foundation.

As stated by Charles H. Clark, secretary of the Institute, the two provide a foundation upon which an adequate program of textil research may be built. While the industry has lagged in this particular line of endeavor, it has not been unmindful of the need for a broad co-operative program of research; the evidence of its efficacy in other branches of manufacture has been all too plain. Furthermore, where textile concerns have been sufficient unto themselves in size and surplus finances, they have in a few cases demonstrated the profitability of scientific r esearch like similar enterprises in other lines.

It is the very nature of the textile industry, however, that makes essential the development of a broad co-operative work in research. Whereas in the case of the American Telegraph & Telephone Company, General Electric, General Motors and such great national organizations, expenditures for research alone can run into sums ranging from two to twelve millions, only a few of nearly 7,500 textile units can separately support extensive research work.

As estimated by Mr. Clark, however, the average production of textile mills for the last four census years was valued around $5,500,000,000. Only 1-100th of one per cent of the gross annual sales would finance a respectable program of fundamental research. In view of what concerns in other industries consider a reasonable minimum, it is apparent that this co-operative program for textile producers would entail a relatively insignificant expenditure for what is an invaluable service and one which soon or later they cannot afford to disregard.

Any of the research men engaged in economic research will pay tribute to the other men in the background engaged in fundamental research. Not many years ago President Hoover said that "unless pure science fills up the reservoirs of basic knowledge, in order that the mental equipment of humanity as it exists today can use it, the pace of our development may slow down during the century to come". We have been hearing through many months of the depression how something new like the auto, the radio or other product to take the fancy of the buyer was the thing needed to restore prosperity. It is invention—today largely a matter of research—that will produce the new thing or things.

Edison made a business of invention and other industries are following suit. Dr. Charles E. Mullin once said that a single idea, properly applied, may be worth more than a year's routine work by the same man. Recent comment from here and there has

referred to research as a means of egress from the depression and a buttress against similar conditions in the future. The *Iron Age* says that the companies that have evaded red ink can thank intelligently conducted research therefor. That paper adds: "He who is satisfied with today's performance and would use it as the measuring stick for the future will awaken tomorrow to find himself outstripped by his competitor."

Textiles and electricity offer a contrast between the old and the new way of progress. The history of invention in textiles is romantic and all that could be expected of an earlier day in industry. The record of the patent office shows that Edison is credited with more than a thousand patents. This is the result not of one man's research but of a veritable factory therefor. The great inventor said: "I am more of a sponge than an inventor. I absorb ideas from every source. My principal business is giving commercial value to the brilliant but misdirected ideas of others."

Research as a Salesman.

Research has recently been called the best salesman for industry. Its purpose is the seeking out of new knowledge in processes, machines and products. The cooperative plan of the textile research groups now working is to provide for all associated this broad knowledge, which they can then apply in their individual ways for the one purpose for which industry exists; to supply what will appeal to the public. One single instance of what may be done can be cited from the textile industry itself. Arno S. Pearse, speaking on cotton research at a meeting in Italy two years ago, said: "Who, twenty years ago, would have thought that tire fabrics, quite a new use then, would so soon be one of the chief single uses for cotton"?

Much has been made, off and on, of the principles of machinery being the same as they were when hand methods gave way to mechanical, power production. Fundamental principles, however, are apt to be unchanging. That does not prevent great changes and research into processes will always be an important phase of industry. In fact, as one speaker at a recent textile forum in Boston said, while during the long period of machinery up to 1920 or 1922 the manufacturers of textile equipment were called upon chiefly to improve their product only, the demand since that time has been for changes of a more fundamental nature.

C. E. Mead, manager of the Cotton Research Company of Boston, said a few years ago that an examination of the records in the Patent Office, he believed would show the number of patents having to do with processes for textiles far exceeds those for any other field of industry. "In the cotton industry," he added, "the chief opportunity for research is in the application of the product to new commercial uses which are developing as other industries develop." He cited the development of rayon as one instance of what may arise to call for new principles of textile manufacture. All of which bears witness to the great need of persistent research.

Mill Findings— by Allen Jones.

"THESE 'findings' are not my own," says the author. "I can hardly say they are our overseers', even though they helped. Rather they are the findings of an organization of people, with a common interest to better things. There has been co-operation, helpful suggestions, and hard work. You have them on your job. You have the facilities. Find them."

In this brief article, Mr. Jones has given you some food for serious and valuable thought. Read it, and give us your reaction . . . . . .

AFTER a mill has been running for a while troubles frequently show up. The ability of an organization to find them and to *prevent their recurrence* is one of the vital needs in manufacturing today. Another common fault is the difficulty experienced in putting back into production different fabrics which have been discontinued for awhile, with the usual loss in production, seconds, off-standard weights and delayed deliveries.

These and many other every-day problems can be helped, if the little things of manufacturing are studied, a few principles mastered, and an organization trained to work with their heads as well as their hands.

A few "findings" concerning little things will be noted here, starting with the picker room. The machinery manufacturers and forward-thinking managers have accomplished wonders in making picker laps more even, i.e., lap by lap, and yard by yard, and some mill operators seem content to take it easy, assured that they have the latest picking equipment. In reality they have only made a start. Regulating the weight of the lap to changing atmospheric conditions is another vital help, and good equipment can be bought for this purpose.

Equipping cards with continuous strippers helps to make even work, but the simple expedient of stripping alternate cards can be done. This insures that the cans put in behind a delivery of drawing at stripping time will contain sliver from three cards just before stripping and three cards just after stripping, tending to make even work. The inexpensive installation of humidifiers around the cards, with a direct reading hygrometer located conveniently, will cut out many an uneven streak of card sliver going through the mill.

The tension gears on the several processes of roving machinery act similar to draft gears, yet overseers frequently change them to keep the work running well, when in reality something else is at fault—quite frequently a change in relative humidity. The installation of humidifier heads around the roving frames and proper watching will reduce the need of changing tension gears and evener yarn will be made.

A good many mill men talk about standard twist on roving frames. There is no such thing as a standard twist multiplier in roving. The hank roving made and the staple of cotton both affect the multiplier which should be used. Changing either one necessi-

tates another twist multiplier. I favor a little more rather than a little less twist. The commonly-accepted practice of putting in just enough to keep from breaking back in the creels is dangerous; if just a few break back, rest assured that many more are stretched.

The lay on the bobbin is a very vital factor, both in roving and spinning. Even accepting some of the well known rules is questionable, for the diameter of soft-twisted long staple cotton is different from comparatively hard-twisted short staple, and the lay should be adjusted.

The practice of stocking up roving ahead as it accumulates is commonly done, but not by mills who run single roving in spinning frames. The variations in weights caused by the dried-out stock show up so prominently that little roving is kept ahead. Even when it is necessary to store colored roving bobbins they should never be run direct on the spinning frames. The stock should be held on bobbins of an earlier process, so that it can be run through one process of roving, at least, to enable it to absorb additional moisture, and then put on the spinning frames.

Along the same lines, some mills put colored and grey yarns of the same yarn number on a section beam and wonder why the beam is ridgy. The diameter of dyed yarn is less than that of grey yarn and consequently does not fill up the beam as fast. This can be remedied by running the colored yarns sufficiently heavier to correct this fault. The cloth will look smoother also.

Mills running fabrics requiring soft spun coarse fillings frequently accept the results obtained as satisfactory, excusing themselves because "everyone else has the same trouble." The very nature of the filling shows up, as glaring defects, conditions which are not noticeable in regular filling. Irregular twist caused from uneven tension, or dirty bands or tape, bad rollers, worn rings, uneven weighting, and many other troubles chargeable to *particular spindles* play havoc with the loom stops and seconds. Particular stress should be paid to the twist multiplier and the lay on the bobbin on each number of filling. The problems of ropy filling, break on the change, and filling breaks, can be traced to the particular cause, if intelligently studied.

If the goods are napped and have been napping successfully, most troubles can be traced to the spinning room, some to individual looms and a few to the nappers. Properly manufactured fabrics should nap the same, day by day, winter and summer, with the same stock coming through the mill. When the desired nap is not secured by the standard number of runs, something is wrong. Extra runs may help correct the effect, but they will not eliminate the cause.

Dyed and bleached raw stock should run just as good as grey stock throughout the mill. The same twist multipliers should be used and several colors and grey roving should run satisfactorily on a roving frame, with no noticeable difference in tension. But there should be humidifiers around the cards so that the moisture can soften up the salt left in the dye bath.

These are just a few "findings" from a comparatively brief stay in one place. They do not touch on the apparently big problems of manufacturing, such as speeds, production, drafting, roll settings, and other questions often discussed by mill men. There is always a "why" in mill work. Nothing ever happens of itself. Something always causes it. The common practice is to point out the cause straightway, and orders given to have it corrected. How much better to list on paper several things which *might* cause it, other than the apparent one, and work them out first? Common sense should tell that a condition which has been all right for sometime does not change over night. It is not always short cotton or twist. Most likely there has been no change, but the unexpected has happened. Ferreting them out frequently unearths some underlying manufacturing principle which you did not suspect. We found these, hunting causes:

"The twist multiplier must be kept the same for any napped yarn."

"There is no weak filling."

"The spinner puts the nap in the goods, the finisher brings it to the surface."

These "findings" are not my own. I can hardly say they are our overseers', even though they helped. Rather they are the findings of an organization of people, several hundred in fact, with a common interest to better things—the mill village, the mill, the job, the goods, and one another. There has been cooperation, helpful suggestions, and hard work. Every little bit has contributed to our store of knowledge and the underlying principles have been discovered.

You have them on *your* job. You have the facilities. *Find* them!

Durene Licenses Users.

The Durene Association of America, 250 Fifth Avenue, New York City, has mailed out a new and improved license agreement to the Association's 615 licensees.

The new license form, said E. L. Starr, director of the association, had been decided upon for several reasons which were generally desirable. Most of the most important of these was the substitution of the name "Durene Association of America" for "Mercerizers Association of America" which originally granted licenses to users of durene yarns. The Durene Association has for two and a half years been in charge of all merchandising and sales promotional activities originally initiated by the Mercerizers Association.

The new license labels will bear the phrase, "Made of Durene", instead of merely the word durene, for the reason that durene refers to the quality of the industry's yarn, and not the finished merchandise made therefrom. As soon as they have exhausted their present supply of labels, licensees are requested to use the new "Made of Durene" form.

Many congratulatory replies were received by return mail by the Association after the new agreements were made out. Commenting upon the agreement, Mr. Starr said: "With the durene movement winning such satisfactory results and endorsement from the trade and general public, we believed that the license changes would be advantageous to every one, and early replies have indicated this."

Leno Weaving and Designing

Part Three

By Thomas Nelson
Dean N. C. State Textile School.

THIS concludes a three-article series on this subject by Mr. Nelson. The first article appeared in May, and the second in July. A supplement, discussing how to make net lenos with only one set of doups, will appear next month . . . . . .

Net Leno—Top Doup.

On net lenos both bottom and top doups are used. When a bottom doup is used the cloth is woven face down in loom but when a top doup is used the cloth is woven face up. Top doup patterns are usually made with twine doups and woven face up. Fig. 42 illustrates a doup heddle used. Fig. 43 illustrates a doup heddle marked *A* with twine doup marked *B* passing through the eyes *C* and *D* and tied to the top of doup shaft *E*. The crossing end *F* passes through the loop of doup *B*. Figs. 44 and 45 more clearly illustrate the arrangement of the harnesses, doup, warp beams, etc. Each part has a special name well known to leno weavers and designers as follows:

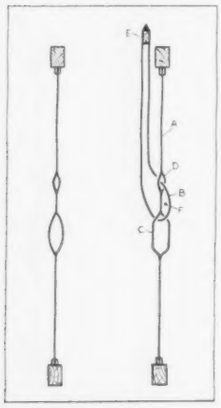


Fig. 42. Fig. 43.

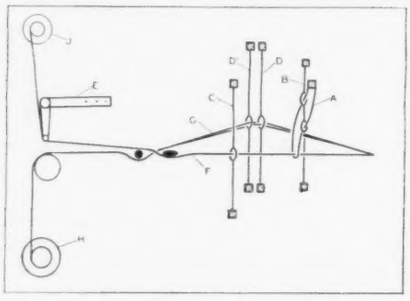


Fig. 44. Open Pick, Using a Top Doup.

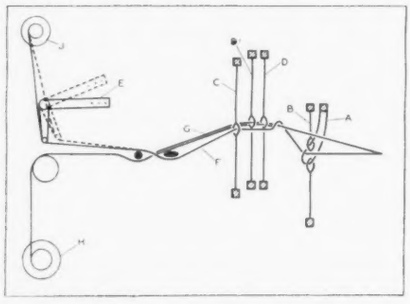
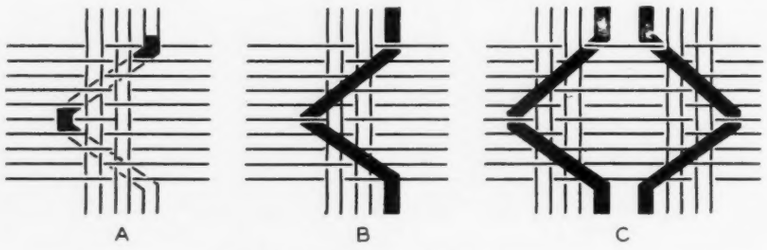


Fig. 45. Crossed Pick, Using Top Doup.

In illustration, *A*, represents the doup; *B*, the doup harness; *C*, the crossing harness; *D* and *D'*, the standard harness; *E*, the easer or slackener; *F*, the crossing end; *G*, the standard ends; *H*, the main beam; *J*, the leno beam. In these illustrations one crossing end crosses two standard ends. Fig. 44 illustrates the position of the harnesses for "open" pick. Fig. 45 illustrates the position of the harnesses for "crossed" pick. The operation of the harnesses is as follows: *Open Pick:* Lower the crossing harness *C* and doup *A*, raise standard harnesses *D* and *D'* and the doup harness *B*. *Crossed Pick:* Lower the doup *A* and doup harness *B*, raise crossing harness *C* and both standard harness *D* and *D'*, also the easer *E*. As two harness shafts are being used for the standard ends, one of them can be lowered on both open and crossed picks which is frequently done. This allows the standard ends to weave plain throughout the pattern.

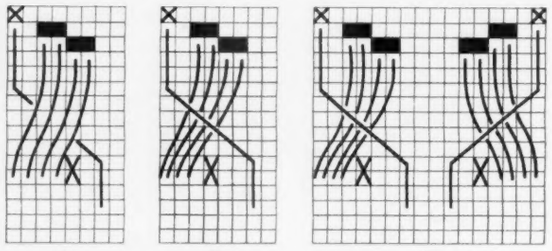
In Fig. 46, *A* illustrates a net leno pattern, one crossing end, two double standard ends, bottom doup. *B* is the same leno pattern for a top doup. *C* is the same pattern for a top doup but to use a left and right-hand doup. Fig. 47 illustrates the drawing-in drafts for these patterns. *A* illustrates a left-hand bottom doup. *B* illustrates a left-hand top doup. *C* illustrates a left-hand and right-hand top doup. Fig. 48 illustrates the chain plan for *A* using a bottom doup which will be a steel heddle doup, cloth woven face down in loom. Fig. 49 illustrates the chain plan for *B* using a twine doup, cloth woven face up in loom.



A B C

Fig. 46. Diagrams of Net Lenos.

Fig. 46*C* shows a right and left-hand doup being used to form the diamond and Fig. 49 is also the chain plan for this pattern. Fig. 50 is practically the same pattern as *C*, Fig. 46, the only difference being in the operation of the standard ends on the open and crossed



A B C

Fig. 47. Drawing-in Drafts for A, B, and C, Fig. 46.

picks. In this case both standard ends are raised and correspond with the operation of harness at Figs. 44 and 45. Fig. 51 is the drawing-in draft and Fig. 52 the chain plan, using twine doup and woven right side on face as in illustration. Fig. 53 is the drawing-in draft and Fig. 54 the chain plan using steel heddle doup, and woven right side of cloth at bottom.

A detail analysis of Fig. 50 may make the operation of top doup plainer. Examine Figs. 50 and 52. On picks 1, 2, 3, 4 standard ends weave plain, crossing ends being raised. On pick 5, the standard ends are raised, and the crossing ends lowered by lowering crossing harness and doup. This is the open pick. On picks 6, 7, 8, 9, the standard ends weave plain and the crossing ends are raised. On pick 10, standard ends and crossing harness are raised and the crossing ends are lowered by lowering doup and doup harness. This is the crossed pick.

Note: Crossing ends simply float on top between open and crossed picks, kept there because the doup and doup harness are raised. The zig-zag effect is therefore made by the open and crossed picks. If open picks were made only, the crossing end would simply weave parallel with the standard ends, and the same would occur if only crossed picks were made.

The standard ends on a net leno and the ends for the body of the fabric are usually taken from the same warp beam. When a coarse or heavy ply crossing end is used the added thickness causes the standard ends to "take up" more and this in turn causes these ends to break. One method of overcoming this is to have the standard ends float on open and crossed picks, and this relieves the strain, as illustrated in Fig. 50.

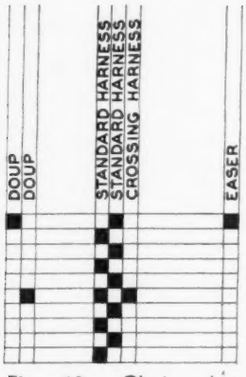


Fig. 48. Chain plan for A, Fig. 46 . . .

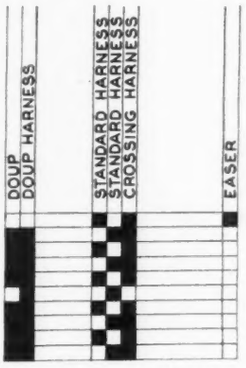


Fig. 49. Chain plan for B, Fig. 46 . . .

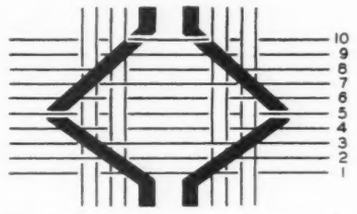


Fig. 50. Diagram showing a method of arranging the ground threads . . . . . .

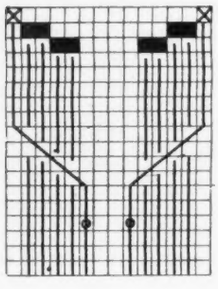


Fig. 51. Drawing in draft for Fig. 50. Top doup; cloth woven right side up.

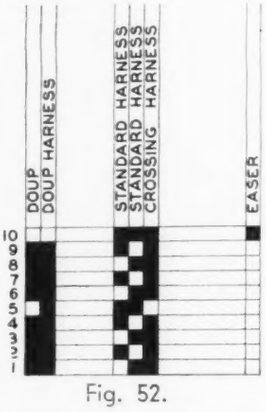


Fig. 52.

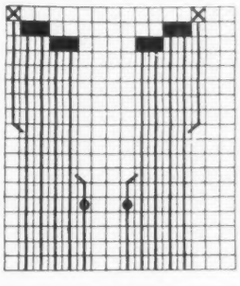


Fig. 53. Drawing in draft for Fig. 50. Bottom doup . . . .

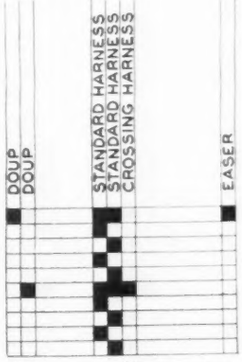


Fig. 54. Chain plan, steel heddle doup used; cloth woven upside down . . . .

Practical Analysis of Leno Fabrics.

The analysis of a leno fabric differs from that of an ordinary fancy fabric. It is not necessary to pull a single end from the leno cloth in order to reproduce the fabric. Of course this can be done, and is often resorted to with fancy fabrics, even when the analyst understands the construction of weaves and their effects in the cloth, and the intersections of each end are indicated separately on design paper. This is not at all necessary when analyzing a leno cloth as a design does not have to be made; all that is necessary to reproduce the pattern is to make the chain plan, drawing-in draft and reed plan.

To illustrate this in a practical manner, Fig. 55 is given, which is a sample of leno cloth, composed of plain weave, hemstitch and net leno. It is advisable in the first place to make the chain plan, and after this the drawing-in draft and reed plan. The following points should therefore be noticed: (1) How many crossing ends work differently from each other? This will show how many sets of doup are required. (2), How many standard harnesses are required for each crossing end? (3), Ascertain the full number of harness shafts required, then mark on design paper the lines of squares required for each weave and in their order.

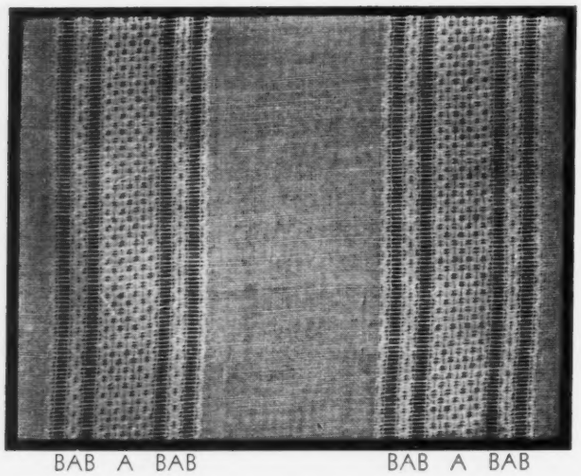


Fig. 55. Sample containing hemstitch and net lenos.

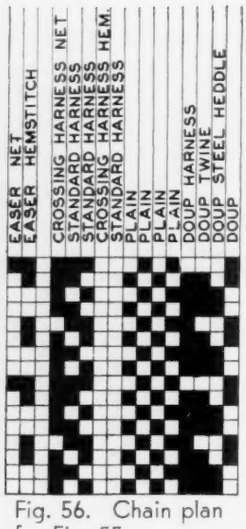


Fig. 56. Chain plan for Fig. 55 . . .

ness and doup is lowered, the crossing ends are lowered on the opposite sides and outside the standard ends, and in this way the diamond is formed.

For plain weave in the cloth, four harness shafts will be used. This will give a total of 13 harness shafts; four for hemstitch, five for net, and four for plain.

The next point is to mark on design paper the order in which the harness shafts have to be arranged. Then the working of each weave should be marked down separately under its

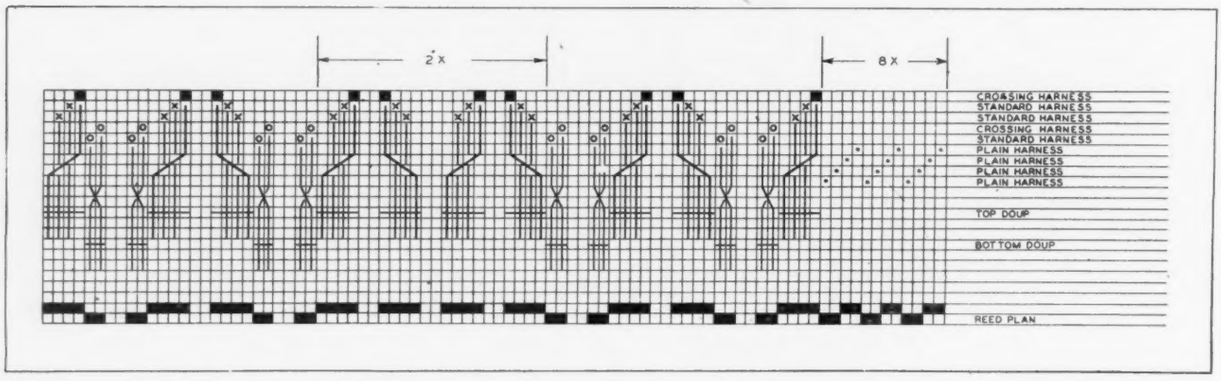


Fig. 57. Drawing-in draft and reed plan for Fig. 55.

To apply these points:

It will be noticed that there are two separate and distinct lenos in the sample. The section marked *A* is "net" leno with a plain cloth ground. The section marked *B* is "hemstitch" leno bordering a plain stripe with two empty dents in the reed between each leno stripe. In the net leno there is one crossing end and two double standard ends—two ends weaving together as one—therefore the number of harness shafts required for this leno will be five; one for doup, one for doup harness, two for standard, and one for crossing.

In the hemstitch leno there is one crossing end and one standard end, therefore the number of harness shafts required will be four; two for doup, one for standard, and one for crossing. It should be noticed that in a hemstitch leno only one standard harness is required. In a net leno, with few exceptions, the standard ends weave plain, either wholly or in part and two harness shafts are used.

In the sample shown, Fig. 55, it would seem that the crossing ends in the net leno do not all work the same and would require more than one set of doups. It will be noticed, however, that each of two crossing threads which form a diamond are weaving exactly the same, but a left-hand doup is used on one side and a right-hand doup on the other. When the doup is lowered it causes the crossing ends to be lowered together inside the standard ends, and when the doup harown set of harnesses. This has been done in Fig. 56 which clearly shows the method of procedure.

Fig. 57 is the drawing in draft and reed plan. The dots and crosses represent ends from bottom beam for plain and standard, the solid squares represent the crossing ends for net leno taken from the top beam, the circles represent ends for hemstitch leno taken from the middle beam. Empty squares in reed plan are for empty dents.

There are a few other points which must be kept in mind: first, when twine doups are used, the doup must always be in front of doup harness; second, the crossing harness must always be *behind* the standard harness; third, when more than one set of doups are used, each set should be kept together, that is, the crossing and standard harnesses should be together and not all crossing harness together, then all standard. This however, is not compulsory, but the writer's experience is that the best results are obtained by keeping the harnesses of each set together.

Note: Sample, Fig. 55, is woven right side up. Twine doup used for net leno. Steel heddle doup used for hemstitch leno. Both crossing and standard harness used for hemstitch. Crossing harness can be raised on open picks if desired. Easer used for both hemstitch and net.

This concludes a series of three articles on this subject by Mr. Nelson. A supplement on making net lenos with only one set of doups will appear next month.—The Editor.

CURRENT TOPICS

Talk of the Month.

BEGINNING the second quarter of 1932, it might be said that the cotton industry was facing the future with confidence, but with reservations. The reservations had mostly to do with outside affairs, which have done so much to disrupt the normal progress of all industries. The aggravating thing about the prolonged uncertainty of the spring and early summer was that everybody was expressing the sentiment that business would go ahead as soon as Congress was out of the way—yet for many weeks after the first predictions of a wind-up to legislative activities were made, the echo of such predictions was still heard and the reality had not appeared.

The General Situation in Textile Markets.

Besides this obstacle, there remained the uncertainty over the cotton crop and the restricted buying power, but these two circumstances were not of a kind to hobble the industry when other things could be shown as favorable. Many people cite the lack of buying power as though that were to be created anew from the consumer end, rather than from new production, from which primarily all wealth springs. Consumers get their buying power rather from employment and that will come when producers and distributors feel confidence that the turn from retrenchment all along the line has come, as a result of the practical elimination of inventories and the final liquidation of prices for raw material.

During the past month there developed the first convincing indications that the cotton industry was facing the future in a new confidence of spirit, tempered by proper caution lest some extraneous influence "spill the beans" again. The trend of raw materials in general was such around the middle of July that even buyers of textile goods were being convinced that they had seen their last chance to purchase at the low point of depression. Even the seemingly endless session of Congress could not nullify the salutary influence of the drastic curtailment of textile, and all other, manufacturing.

When industries are running 12, 25, or 30 per cent of capacity, certainly they are not supplying enough goods to meet even a sub-normal demand for the population of 125,000,000 people or so in this country. If industries are stagnant, distributors are reducing inventories and a reaction to slow buying of wholesalers and retailers must come some day from low stocks alone. It will be quickened by signs of higher prices and the ball will start rolling along the road to normal times. But, meantime, the outstanding development of the past month has been the proposal of measures for rigid control of cotton-mill operation during the next year and a quarter because of a sane view that progress toward normal is not promising to be over-fast.

Raw cotton, as usual in the summer, is a vacillating factor in the goods market. But it will not be a controlling factor when buyers of goods find themselves in need of supplies and see no reason in view of newly stabilized prices, for further procrastination in covering requirements. The very control of mill operations, on top of threatened congestion of buying beyond the momentary ability of the mill to refill orders, is a factor upon which some buyers began to reckon early in July. As for some time, it may be claimed that textiles cannot go along without the support of better general conditions. It should not be forgotten, however, that a start must be made by some industry and many economists look for cotton to lead. Furthermore, the parallel ease of other industries in prices, low inventories and prospective demand suggest strongly that the leader will not stay far ahead.

What the South has been doing toward readjustment of mill schedules during the past year has naturally obtained a large share of attention in the goods markets, accentuated this summer by the proposal as mentioned for continuation of control. Such activity for reasonable operation of machinery has reached the trade further afield, even to Great Britain, where it has been hailed by the Lancashire cotton manufacturers as an important step toward social and economic betterment. In this connection, there is a suggestion of international cooperation for expansion of the world demand, from the invitation of the group of Lancashire mill men recently in New York to George A. Sloan, president of the Cotton-Textile Institute, to visit the English center for a discussion of mutual cotton problems.

For some months there has been talk of a finishing-plant merger, but definite information concerning the same seems to await further progress toward accomplishment. Early in July a denial was made by officials of one company that it contemplated, as had been suggested, a consolidation with another New Jersey finishing corporation. A similar denial was made by the representative of one of two finishing companies in New England in the middle of June. Nevertheless market reports indicate that some leading finishers and a banking group are earnestly concerned with an important scheme in the finishing department of the textile industry.

New England Mill Situation.

NOT much was expected of the first part of the summer for the cotton mills of the New England district, unless it be in the way of preparation for an active business to follow. Although production was cut way down, this way by indirection an element of strength through needed reduction of inventories and incidental effect upon customers who soon will presumably be requiring substantial supplies. Evidence began to appear the first of the summer that buyers were not only appreciating that values were as low as possible, but were assum-

ing the character of a good speculative purchase, especially as curtailment was on a scale to indicate actual scarcity of some staple lines wanted by consumers.

Pending the development of a better general situation and the accumulation of orders for cotton fabrics, attention has been given to the broad fundamentals of the industry in this section, including financing. The outstanding action of the past month was the formation of a sub-committee on textiles of the Banking and Industrial Committee of the first Federal Reserve District, looking to ways and means toward improvement of the textile business as a whole in New England. The main committee is concerned with the broad matter of assistance in this section, under the plan of the Reconstruction Finance Corporation.

As dismantling of spindles in the country has been conspicuously a New England matter, the early July figures of the Association of Cotton Textile Merchants of New York have been a subject of keen interest in this district. This organization found that, over the two years of 1930 and 1931, upward of 2,200,000 spindles had been scrapped. Massachusetts, standing alone because of its 48-hour law and other stringent regulations, has suffered most.

Senator Walsh of Massachusetts, in his proposal for relief to all industry in the country from the restrictions of the anti-trust laws, was seconded by the National Association of Cotton Manufacturers for a change which has been agitated broadly for many months. The proposal briefly was that the provisions of these laws be suspended for two years, during which time the Federal Trade Commission could investigate the influence of such restraint upon business in the country.

Certainly anything that would allow free co-operation for the benefit of industry today could not be harmful, at any rate over a temporary period. Since these laws were made industry has found many useful forms of co-operation which do not contravene a healthy competitive status, but a strict interpretation of the laws has hampered trade associations of all kinds in disseminating information of value. Working under trade agreements approved by the Federal Trade Commission, these associations could do much in all probability to relieve the general economic stress, without doing anything suggestive of monopolistic control.

One outcome of exceedingly low prices for cotton goods may be a permanent change in the business of mills making sheets. As Ernest N. Hood, treasurer of the Pequot Mills, recently stated, record low costs and the growing popularity of 108-inch sheet is almost eliminating the 90-inch variety. The latter a decade ago accounted for 60 per cent of the sales in nationally advertised branded lines. The longer sheets can now be bought for 16 per cent under the cost of the 90-inch size a year ago and last year the short variety was only 15 per cent of the total in sales. To May 31 this year, 99-inch held to its 61 per cent gained in 1931, but 90-inch dropped to 8 per cent and 108-inch rose from 23 to 31 per cent. Those who find the long sheets economical today will, most likely, never be suited with any other henceforth.

Among the interesting textile developments, allied with the rubber industry, is the manufacture of "Lastex", at the plant of the United States Rubber Company in Providence. Some 600 workers are employed in the manufacture of a rubber thread used for making corsets, brassieres and other products in a wide variety. Lastex, or liquid rubber, is spun somewhat similarly to rayon. The thread is then put through winding machines and covered with cotton, wool, silk or rayon to make an elastic thread suitable for weaving or knitting.

The Kendall Company of Boston recently acquired the Griswoldville Manufacturing Company of Griswoldville. The latter makes cheesecloth and surgical goods, which also are produced by the Lewis Manufacturing Company of Walpole, controlled by the Kendall group.

The International Dye & Print Works, of Paterson, N. J., together with Herman Geller, early in July acquired by purchase at public auction the Clyde Dye & Print Works, Inc., of Providence. The purchase price was $156,000. Mr. Geller, president of the International, has been part owner of the Clyde plant. He announced that the plant would resume operation, on the dyeing and printing of cloth.

Henry Otte, of Providence, succeeded Edgar F. Taber, who resigned in June as treasurer of the Booth Manufacturing Company, at New Bedford.

Among the latest moves by a mill community for relief of the industry was a refund by Fall River of $9,258 to the Barnard Manufacturing Company on its 1930 tax account. This was applied to the 1931 bill of the company and involved an adjustment of valuation consistent with one made for the Berkshire Fine Spinning Associates.

Cotton Weevils.

It has been officially announced that 37,290,000 acres of cotton have been planted this year, which compared with 41,189,000 one year ago, indicates a decrease of 9.5 per cent. This acreage compared with that of 1930 indicates a decrease of 19.1 per cent. It would, therefore, seem that low prices have accomplished a radical reduction in acreage, which is something that the Farm Board has not been able to do.

Reports from the agricultural states here and there throughout the cotton belt indicate that the weevils will assist in the reduction process and bring about a much smaller crop than the acreage figures indicate.

Since 1921 yields per acre have ranged from 124.5 pounds to 200.1 pounds. This variation is largely attributable to the amount of weevil infestation occurring each year. Therefore, it is highly impractical at the present time to estimate any reliable production figures. However, if one would like to deduct 3.1 per cent from the acreage planted, which is the 10-year average for abandonment and on the remainder estimate about 158 pounds per acre the crop will show approximately 12 million bales.

This should be regarded as a maximum. The minimum will be indicated by the weevil infestation. It has been estimated that this year the weevils may

reduce the crop 3 million bales. The condition of the weather from now until the middle of August will determine the activity. As this is being written weather conditions are favoring the weevil.

The carry-over of old cotton is very large and even a small crop could not be expected to bring about any marked advance. However, it is safe to say that it will have a tendency to improve conditions in the market by some slight increase in price as well as in confidence. Any increase in price will benefit those who are holding the old crop, which, in most cases, happens to be the shippers. The producer will not get much material benefit from any results that may accrue this year from a small crop.

Spindles Dismantled.

PRODUCTIVE capacities of the American cotton textile industry are being reduced at a rapid rate through the dismantling of machinery, according to statistics assembled by the Association of Cotton Textile Merchants of New York.

In the two-year period ended December 31, 1931, spindles dismantled totaled 2,200,000, to which 590,000 were added in the first five months of 1932. The statistics showed the loss in spindles since 1925 has been 6,200,000, or approximately 16⅓ per cent. In 1925, there were approximately 38,000,000 spindles in place, compared with approximately 31,737,000 now in place.

The number of spindles in place now about equals the number in place in 1912. During the 20 years following that year the population of the nation has increased approximately 30 per cent, it was shown.

The all-time peak of spindles in place was reached in 1927, when the total was almost 38,000,000. In 1928, the statistics showed a decrease of approximately 900,000. A further drop of approximately 1,200,000 was reported for 1929. The decrease in 1930 was approximately 700,000 and in 1931 was approximately 900,000. New installations, additions and replacements ranged from 200,000 to 500,000 per year, with the largest replacement total being credited to the year 1927.

Spindle activity has decreased in the successive years since 1923, which was the peak year with a total of 36,260,000 spindles active. The number active at any time in 1931 fell to 29,000,000, and in May, this year, the total was 21,639,000. The number of idle spindles ranged in these years from 4,630,000 in 1931, down to 925,000 in 1923.

The all-time peak of spindle hours was reached in 1927, when the total was 104,450,000,000. Compared with that total was the total of 76,702,000,000 for 1930 and with 78,000,000,000 for 1931. The average number of hours run per average active spindle in 1927 was 3,095. This total fell to 2,813 hours in 1930, and was increased to 3,030 in 1931.

Production totaled 8,980,000,000 square yards of cloth in 1927, the year of highest spindle activity and this total was almost reached in 1929, whei the yardage was 8,541,000,000. Drastic reduction in production was evidenced for 1930 and 1931, when the annual totals were approximately 6,600,000,000 square yards.

Per capita consumption in square yards for each year, in order, beginning with 1922 was given as follows: 66.1; 71.89; 56.22; 63.62; 64.25; 71.73; 62.50; 66.14; 50.14; 50.93, the last figure being that for 1931.

Surely the textile wants of 125,000,000 people are greater than those 110,000,000 were ten years ago, said W. Ray Bell in the textile merchants' analysis. Any reasonable economic improvement should bring our per capita consumption (of cotton cloth) up to the ten year average, which was given as 62.19 square yards. This would mean an annual domestic market of 7,773,750,000 square yards, and, with average exports added, about 8,181,903,000 square yards. The making of such a yardage would require 95,693,653,000 spindle hours, or 3,015 hours per year for each of the 31,737,174 spindles now in place.

Curtailment.

B. B. GOSSETT, president of the American Cotton Manufacturers Association, has announced that the board of government of that organization, at a recent meeting in Charlotte, unanimously recommended to the industry the equivalent of at least one full month's *additional* curtailment as an emergency measure between July 1st and October 1st, 1932.

This additional curtailment of production was deemed imperative in view of the continued unprecedented slack demand for cotton fabrics of all kinds coupled with hand-to-mouth buying, which is now being carried to a point hitherto unknown in the industry. It was emphasized that this situation, and the fact that prices are substantially below the cost of production, leaves the mills no alternative other than to stop production. Only in this way can the accumulation of excessive stocks be avoided and the way cleared for a moderate revival of business in the Fall. It was also pointed out that this is the season of the year when drastic curtailment will work the least possible hardship on the mills' employees. Therefore, excessive and unjustified operations during the summer months should be avoided in order that the mills might be in a position to give their employees the greatest possible amount of work during the hard winter months.

The Board of Government also unanimously recommended to the industry that all night operations of productive machinery be stopped for a period of one year beginning October 15, 1932. This proposal looks to voluntary co-operation, and is in line with a similar recommendation recently submitted to the industry by The Cotton-Textile Institute through its board of directors.

It is believed that the adoption of this recommendation will make for greater stability of employment and prices and avoid constant recurrent periods of over-production, under-employment and price demoralization from which the industry has so seriously suffered in recent years.

The mills were also urged to avoid manufacturing goods except against bonafide orders and to make no sales at less than cost of replacement.

The board also recommended that the mills and their selling agents make a comprehensive study of

existing methods of merchandising and distribution with a view to strengthening the selling structure in every possible way.

Railroads vs. Trucks.

THE present economic condition has expressed itself in serious competition between the railroads and the trucks as transporters of various freight commodities. It has brought about competition in rates and service which seems to be unabating in the struggle for the reduced movement of commodities.

The textile mills are using trucks a great deal because of the convenience and rapidity with which material is handled. Carloadings drop from week to week and the death struggle for the survival of the railroads becomes more intense. It may be that this competition will become so strong that government ownership of the railroads will become a necessity, because the rail lines of our nation are the great economic arteries that carry the life blood of American commerce.

The textile mills may be getting cheaper rates and quicker service at the present time through truck transportation but if it should become necessary for the government to take over the railroads, the government would have the power to fix rates much higher than they are now, and if this means does not bring sufficient revenue they can make appropriations and loans sufficient for the proper maintenance and upkeep of the rail lines. Either one or both of these measures might mean not only an offset in the savings made by truck lines at the present time but an increase in freight rates in excess of any savings that may be effected.

The rail lines are a national necessity and the government is authorized to see that this national necessity is maintained. Therefore, it behooves every one who handles freight to take a broad view rather than a narrow view in the transportation of freight commodities.

Comment on the Cotton Market

New Orleans, July 14th, 1932

REPORTS of boll weevil increasing, attributed to much rain in the cotton region during June and early July, developed into a factor of no little importance in the cotton market during the past month. Middling cotton locally advancing to 6.06 on July 6th, showing an advance of nearly $5.00 per bale as compared with its level as of June 14th. Of late, however, generally dry, hot weather prevailed inland, which was favorable for the growing crop and for checking activity of the weevil, at least for the present. In consequence of the more favorable crop weather of late, the market declined sharply as the result of much realizing and hedging. Nevertheless, compared with one month ago, Middling in New Orleans shows higher by $2.00 per bale.

This year's estimated acreage planted, as of July 1st, is the smallest since 1922, and boll weevil are reported more numerous in many districts than since 1923. The damage by boll weevil in 1931 was reported as 8.3 per cent, and the average yield per acre was 201.2 pounds; in 1923 the damage by boll weevil was 19.2 per cent, and the average yield per acre was 130.6 pounds and the 10-year average damage by boll weevil was 12.1 per cent, and the average yield per acre was 159.0.

Not much encouragement was derived from the stock market, for while the rediscount rate of the New York Federal Reserve Bank was reduced to 2½ per cent from 3 per cent, and notwithstanding the numerous measures adopted by Congress, calculated to help general business and improve the credit situation, there has been no marked change in sentiment in Wall Street as yet, although there is evidently more cheerfulness in some quarters as result of the reparations settlement reported among European nations.

What the general situation needs badly is a rising market for commodity values, which would be of inestimable benefit for the restoring of confidence and for the return of prosperity since such a development would increase the buying power of the farmer and bring about a change to optimism by increasing the output of mill and factory. While the present situation in the wheat market is not encouraging, prices, nevertheless, are already very low. There is more stability to sugar, coffee, cattle and hogs, all having improved somewhat in value. So far as cotton is concerned, the outlook remains uncertain because of the anticipated very large season-end surplus and the uncertainty as to the outcome of the growing American crop, which is threatened by boll weevil this year, also as to the uncertainty of foreign cotton crops this year.

Recently the New York Cotton Exchange Service, compared with last season, estimated the world's consumption of American cotton during May at 1,017,000 bales versus 964,000, and for ten months 10,454,000 against 9,222,000. It is also estimated the world's carry-over of American this year at 13,250,000 to 13,350,000 bales. Linters not included,

BRITISH BOARD OF TRADE REPORT FOR JUNE

Year—	1932	1931	1930
Exports of yarn, pounds..	10,000,000	10,000,000	11,000,000
Exports of cloth, yards..	185,000,000	133,000,000	159,000,000

CENSUS REPORT

United States— Bales	This season	Last season
Consumption of lint, June	320,783	453,901
Consumption of linters, June	46,680	61,796
Consumption, including linters, June	367,463	515,697
Consumption of Linters, 11 months	588,044	649,792
Consumption, including linters, 11 months..	5,178,491	5,461,882
Mill stocks, June 30th	1,322,793	1,131,191
Stocks in public storage and warehouses, June 30th	7,154,241	4,970,584
Stocks in mills, public storage and warehouses, June 30th	8,477,034	6,101,775
Active spindles during June	20,561,914	25,898,026
Active spindles during May	21,639,352	26,379,082

STATISTICS AS OF JULY 8th.

American Cotton— Bales—	This season	Last season
In sight since August 1st (marketed)	15,513,000	13,944,000
Exports from the U. S., including Canada, since Aug. 1st	8,507,000	6,746,000
Spinners takings since August 1st, world	13,409,000	11,370,000
World's visible supply	7,549,000	5,779,000
Middling in New Orleans today, July 14th	5.53	9.16

Compared with last year the world's visible supply of other kinds on July 8th was 1,978,000 bales versus 2,306,000, and of all kinds 9,527,000 against 8,085,000.

Recently the government made report as to the acreage in cultivation as of July 1st, estimating this year's area planted to cotton at 37,290,000 acres, a decrease of 9.5 per cent, which compares with 41,189,000 acres last year, and is the smallest acreage since 1922 when the acreage was 34,485,000 acres. In 1926 the area planted to cotton was the largest on record—48,730,000 acres.

Prior to issuance of the government's acreage report, two private crop estimates were released, one placing the indicated yield at 12,952,000 bales, while the other estimated the indicated production at 12,795,000 bales. After the government's acreage estimate was issued, the Fossick Bureau, based on the government's acreage, estimated this year's crop at 11,700,000 bales.

According to a press dispatch from Baton Rouge today, Louisiana's cotton production will show a probable decrease of 300,000 bales this year as compared to 1931, according to Harry D. Wilson, commissioner of agriculture. Last year Louisiana made 900,000 bales of 500 pounds gross weight.

TOTAL AVERAGE RAINFALL IN TEXAS

Inches— Year	1932	1931	1930	Normal
June	3.07	2.01	2.14	3.20
Nov. to June, inclusive	24.22	19.72	19.10	20.26

Washington's summary for week ended Tuesday, July 12th—"A continuation of frequent showers over most of the cotton belt during the first part of the week was decidedly

unfavorable, with widespread complaints of sappy growth, rather poor fruiting, and conditions favorable for weevil activity. However, the last half of the week generally dry weather, with much sunshine and higher temperatures prevailed, which markedly improved the situation.

"In Texas plants are squaring and blooming nicely to the northern part of the State, and picking is becoming general in southern portion. In Oklahoma progress was mostly good, and it was good to excellent in northern Arkansas, though in the central and southern portions of that state growth has been too rank with decided increase in weevil activity because of recent rainy weather.

"There were also complaints of sappy growth and poor fruiting in many localities in Georgia and some places in Alabama and Mississippi. In the Carolinas progress and conditions were good."

As to prospects for an early demand for new crop cotton, late advices from Houston, Texas, are to effect that there is no improvement in the basis either for export or domestic shipment which would be conducive to an increase in spot business, as Japanese interests in Dallas recently stated that owing to the unsettled economic conditions in the Far East, American cotton would not be bought in the same volume as last year.

While the demand from the Orient may not be so urgent next season, it is possible that there may be improvement in the demand from domestic spinners and probably from England and the Continent, especially from France who took so sparingly of American this season, particularly should there be a satisfactory settlement of reparations and war debts. Meanwhile, however, the trade demand will likely be influenced by the progress of the growing crop. Much rain during the remainder of the summer would likely prove unfavorable because of the weevil, especially to the east of the Mississippi, whereas much favorable weather during the remainder of the growing and maturing periods would probably serve to check the weevil and favor the growing crop.

Now that the trade has something definite as to the area planted in cotton in the United States this year, much attention will likely be centered on future climatic developments in the cotton region. Barring possible outside developments, the continuance of the present hot, dry weather inland for a period would likely be reflected in a downward trend of the market, but a change to less favorable weather for a period would probably cause values to rise again and weevil to become more active. As noted of late, the market is very sensitive to weather developments in the South.

As yet very little has been heard as to acreage and preparations for this year's cotton crops in foreign countries, although Washington advised recently that Russian plantings amounted to 5,802,000 acres or 95.5 per cent of the plan, which is an increase over last year of 450,000 to 500,000 acres.

What the Southern Mills are Doing

Bartex Mills Company, Clayton, N. C., have acquired the properties of the Liberty Cotton Mills there and will operate it as soon as plans for production can be completed.

The plant of the Erwin Cotton Mills Co., at Cooleemee, N. C., is under full time operation. A number of additions have been completed and the 400 houses in the village have recently been repainted.

Bradford Cotton Mills, Montgomery, Ala., recently installed a Hermas improved automatic shearing machine for the cloth room. This was purchased through the Carolina Specialty Company, Charlotte, N. C.

A. K. Adams Co., of Atlanta, have been awarded contract for alterations and additions to the mill unit of the Swift Manufacturing Co., Columbus, Ga. The building will be two stories with basement. Robert & Co., Inc., Atlanta, Ga., are the engineers.

A new office building to replace the one recently destroyed by fire, is being erected at the Pelzer Manufacturing Co., Pelzer, S. C. Gallivan Construction Company is the contractor; J. E. Sirrine & Company are the engineers.

The Wadsworth Corp., Woodruff, S. C., has been incorporated by I. W. Gray, with a capital of $30,000, for the manufacture of cotton yarn.

The Guillet overhauling system has been purchased by the Athens Manufacturing Co., Athens, Ga.

The building of Plant No. 2, Lowell Bleachery South, Griffin, Ga., has been remodeled and re-arranged, and $30,000 worth of additional machinery has been installed.

Georgia-Kincaid Mills, Griffin, Ga., have replaced Atherton pickers with Saco-Lowell one-process equipment.

Contract for the addition to the Lane Cotton Mills, New Orleans, La., previously announced, has been awarded to George J. Glover, of New Orleans. Favrot & Livaudais are the architects.

Robert Yarn Mfg. Co., Roseboro, N. C., has been incorporated, with a capital of $200,000, by R. A. McGinnis of Salisbury and B. H. Hamilton of Roseboro.

Contract has been let to Kennedy-Van Saun Mfg. & Engineering Co., 2 Park Ave., New York City, for the installation of equipment for firing boilers at the Elmore Corp., Spindale, N. C.

Contract for an addition to the dyehouse, and improvements, at the American Net & Twine Co., Anniston, Ala., has been let to A. K. Adams Co., Atlanta, Ga.

A. M. Smyre Mfg. Co., Gastonia, N. C., is to erect a plant in conjunction with their mill to house machinery for finishing yarns. It will be ready about September 1st.

Green River Mfg. Co., Tuxedo, N. C., has been re-organized as Green River Mills, Inc., with W. M. Sherard as president and treasurer. It is understood that about $20,000 will be spent in repairs and improvements and the plant placed in operation at an early date.

The D. E. Converse Company, Glendale, S. C., has recently installed a Barber-Colman automatic spooler and super-speed warper.

Erwin Cotton Mills No. 3, Cooleemee, N. C., have installed an additional Barber-Colman automatic spooler and super-speed warper.

Robert P. Dicks has been elected treasurer and general manager of the Sanford Cotton Mill, Sanford, N. C. He will continue to make his residence in Rockingham, N. C.

W. H. Draper & Co., Rocky Mount, N. C., have begun construction work on an 80x100 foot addition, into which machinery from the company's parent plant at Troy, N. Y., will be moved. The company manufactures cotton sash cord, fishing lines, awning cords and other kinds of cords and cotton ropes.

Repair work at the Anderson Cotton Mills, Anderson, S. C., which has been handled by the Townsend Lumber Co., of Anderson, has been completed.

Wm. E. Hooper & Sons Co., Baltimore, Md., have installed a 1,000-hp. Diesel engine made by McIntosh & Seymour Corp., Auburn, N. Y.; direct connected to electric generator; to furnish electric power for mill.

New Textile Equipment and Publications

Improved 5B Doubler Twister.

Atwood Machine Co., Stonington, Conn., have recently described the improved 5B doubler twister, which was exhibited at the Knitting Arts Exhibition in Philadelphia in April, equipped with several attachments, such as self-oiling rings and lap-proof separators, for the improvement of production and quality.

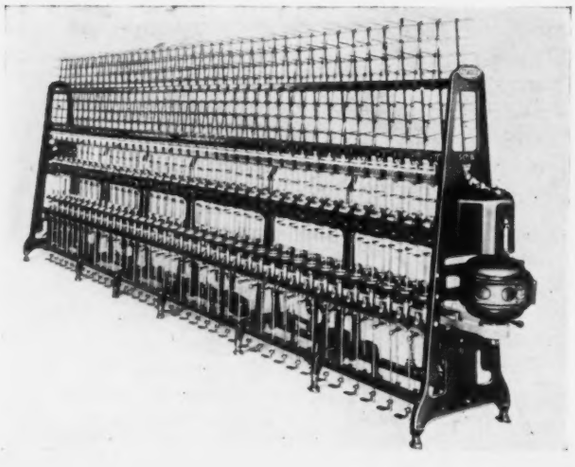
The machine, the company points out, can be run any speed which the silk itself will stand, but the highest speed is seldom the most economical speed, it is explained; the problem of selecting the most desirable speed is usually tied up with the problem of selecting the particular type of ring equipment, feed rolls, lap separators and other attachments, to give the best results for the particular product being run. The company makes this recommendation on the basis of an accumulated experience of many years with thousands of this type of machine operating on all kinds of material.

The machine, they point out, is in general use on silk, rayon, fine cotton and wool, paper, tinsel and endless combinations of these materials. Novelty yarns such as ratine and boucle can also be made on this equipment. This wide use, the company explains, is due in large part to the numerous special attachments by which the machine can be adapted to many highly specialized uses. It will double up to 16 ends, can be geared for any twist, and run at any desirable speed. All types of ring attachments can be provided, as well as different types of feed rolls and other mechanisms and attachments for the particular material being manufactured.

:: :: ::

Pulley-Surface Covering to Prevent Belt Slippage.

Gripwell Manufacturing Company, 105 West 40th St., New York City, have announced the development of a pulley-surface covering known as "Gripwell", designed to improve the frictional contact between the belt and pulley face, for eliminating belt slippage and the consequent loss of power, etc. The cement is described as "a synthetic vegetable and oil compound, whose main characteristic is a quick drying product of great tenacious power, and is used in conjunction with Gripwell Duktex, a specially processed, waterproof-treated fabric which, when applied to iron, steel, wood or paper pulleys gives the belt greater tractive power." The pulley-surface covering, it is explained, "permanently alters the hard, polished slippery surface of a pulley, forming a semi-elastic, gripping surface which either leather, rubber or woven belts readily grip, and which becomes a part of the pulley itself." The compound, it is stated, contains preservative properties which penetrate the pores of the belt and tend to keep it in a pliable and healthy condition. The pulley-surface covering when examined under a microscope, it is pointed out, shows many minute elevations and depressions providing a surface for meshing with similar elevations and depressions in the belt for providing satisfactory adhesion. The manufacturers state that the pulley-surface covering is not affected by acids, steam or climatic conditions, and that with it applied, the belts can be run slacker than in general practice.



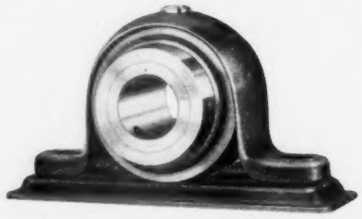
Improved 5B Doubler Twister.

:: :: ::

Dodge Develops Ball Bearing Self-Aligning Pillow Block.

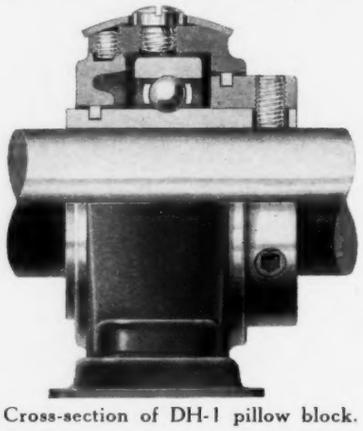
Dodge Manufacturing Corporation, Mishawaka, Ind., announce the development of a new type of ball bearing self-aligning pillow block, Type D H-1. It is explained that this is designed to provide an anti-friction bearing with all essential characteristics for application to light-duty machinery. They offer it as especially suitable for application to conveyors, fans, blowers, air conditioning units, textile machinery, etc. The single row deep groove Hoover ball bearing is used. The housing is of heavy gauge steel, formed for insuring rigidity and is of two-piece construction. The company points out that this is the first departure made from the use of the conventional cast iron, and that this permits smaller overall dimensions making possible the use of this type of anti-friction bearing in many situations.

Another special feature is the use of



Ball-bearing self-aligning pillow block.

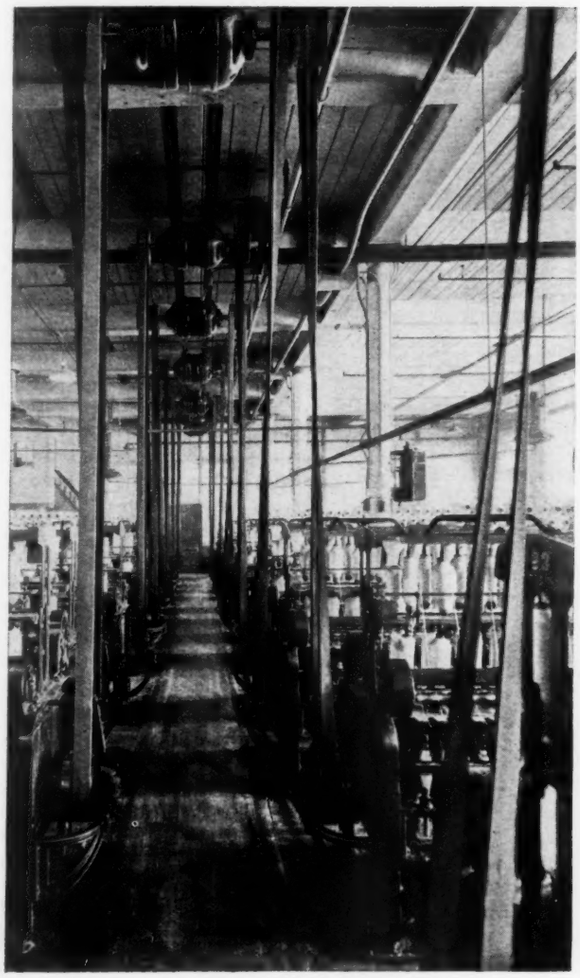
automotive type piston ring grease seals, which, it is pointed out, provide positive protection against leakage of lubricants and admission of dust and dirt. The bearing is fully self-aligning, this feature being obtained by making the outside of the inner housing and the inside of the outer housing spherical, for providing a true ball and socket action. Both radial and thrust load capacity is provided. The pillow block



Cross-section of DH-1 pillow block.

Why Experiment...

WHEN GOODYEAR BELTING IS MILL-PROVEN!



YOU know that belting, to stand the gaff on textile drives, must be designed and constructed with a thorough understanding of the rigorous requirements of cotton mill service. To buy belting that is not, is apt to be an unsatisfactory and expensive experiment.

From first hand experience as one of the world's largest cotton users, Goodyear has probably the most intimate knowledge of textile mill needs of any belting manufacturer.

As a result Goodyear has successfully developed special belting to withstand the brutal punishment of actual operating conditions. For example, Goodyear COMPASS (Cord) Endless Belt—the most nearly stretchless belt made — is a truly endless belt designed for Vertical Openers, Pickers, Tappers and Twisters. Goodyear THOR—seamless construction with protected edges—is standard specification now for long wear and low replacement costs on Cards, Frames, Slubbers, Spoolers, Looms, Slashers and Breakers.

Not only are Goodyear Textile Products *mill-proven,* but each is individually specified to its duty in your mill by the G. T. M.—Goodyear Technical Man—for most efficient and economical operation. That is why you make no experiment when you buy Goodyear Belting—why Goodyear is saving money for so many mill operators.

If you would like to know more about these belts, why not ask the G. T. M. to call? A card will bring him, addressed to Goodyear, Akron, Ohio, or Los Angeles, California, or your nearest Goodyear Mechanical Rubber Goods Distributor.

TUNE IN: Goodyear invites you to hear the Revelers Quartet, Goodyear Concert-Dance Orchestra and a feature guest artist every Wednesday night, over N. B. C. Red Network, WEAF and Associated Stations

THE GREATEST NAME IN RUBBER

GOODYEAR

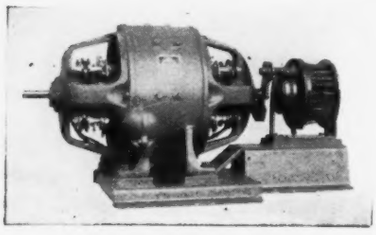
TEXTILE BELTING

is of the expansion type and is available also as non-expansion where required.

:: :: ::

Constant Tension Regulator.

A constant tension regulator has been developed by Reliance Electric & Engineering Co., Cleveland, Ohio, manufacturers of alternating and direct current motors. It is designed for use with devices such as winders for cloth and paper, etc., where it is necessary to have the material wound or pulled at a constant tension. It is explained that for any speed at which the material is being wound or treated, the regulator will keep the pulley tension constant, eliminating the use of a



Constant tension regulator.

clutch. The regulator armature has two windings; the "torque" winding and the "spring" winding. The former is connected in series with the motor driving the machine which is winding or pulling the material. The spring winding (so called because it acts in a direction opposite to the forque winding like a spring) receives its power from the main line. When the current in each of these windings is equal there is no movement of the regulator. If the current in the torque winding increases or decreases, this means an increased or decreased torque in the motor which it is regulating. This causes a movement in the regulator, and the rheostat which is coupled to the regulator shaft corrects the voltage to the driving motor to keep the torque constant.

:: :: ::

New G E General Purpose Photoelectric Relay.

A general purpose photoelectric relay with several new features has been developed by the General Electric Company, Schenectady, N. Y. This relay, it is pointed out, provides more sensitive control than the model which it supersedes and at the same time will permit operation at a mihimum light intensity of three-foot candles. Ten-foot candles was the minimum light intensity prescribed for the old model. Other features in the new relay include improved dielectric strength through the use of a Bakelite panel, an improved phototube housing with a cast aluminum base and a drawn aluminum hood, reduced capacity, reduced leakage due to the use of flexible armored cable between the phototube and the relay proper, thus affording better operation in damp atmosphere. The relay uses a Pliotron tube specially designed for industrial purposes.

:: :: ::

Dayton Rubber Announces New Line of V-Belt Pulleys.

The Dayton Rubber Manufacturing Co., Dayton, Ohio, manufacturers of Dayton Cog-Belt drives, have announced a new development in power transmission equipment—a new line of "Day-Steel" single and multiple V-groove pulleys for use with Dayton cog-belts, for ratings of 7½-hp. and below.

These new pulleys, it is pointed out, are designed not only to effect a saving in cost, but are much lighter in weight for making them suitable for machines requiring the smaller horse power. The company states that, "they are accurately formed from heavy gauge pressed steel for maximum strength, strongly welded both at the rim and at the web, and rigidly assembled with a hub of unique construction for giving an accurately balanced and true running pulley, rugged and of pleasing proportions." A high quality aluminum finish is used on the product. Complete engineering and price data are given in Bulletin No. 110 of the company.

:: :: ::

Ingersoll Announces New Two-Ply Stainless Steel.

Ingersoll Steel and Disc Co., Chicago, Ill., (a division of the Borg-Warner Corporation) have announced the development of a commercially successful two-ply stainless steel, which will be of interest to the textile industry where corrosion problems frequently arise. This new metal, to be known as Ingoclad stainless steel, is produced by a patented process from the composite ingot.

It is stated that, after many years of research, the manufacturing process has been developed to a point where a perfect bond between the stainless steel and the carbon steel back is assured. The product is being produced at the New Castle, Indiana, plant. The textile applications will include the use of Ingoclad for dyeing, bleaching and finishing equipment, as well as for many machine parts in the manufacturing processes where corrosion is a factor.

This new stainless steel, it is stated, may be deep drawn, stamped, welded, formed and polished. According to R. C. Ingersoll, president, it is being produced in various gauges and sizes and has been used by several large companies where extensive tests have been made. Facilities will be available in the near future to supply all practical commercial sizes.

:: :: ::

New Booklet on Power Transmission.

Alexander Brothers, Inc., 14 South Street, Philadelphia, Pa., have prepared a new power transmission guide for leather belt drives, known as Catalogue No. A-103, which, it is stated, presents the application and design of modern leather belt drives in an entirely new manner. The engineering staff of the company spent considerable time in compiling the material and it has been arranged with a view to making it non technical, yet containing real facts for everyone interested in power transmission.

:: :: ::

Reversing Magnetic Contactor.

A new three pole reversing magnetic contactor, interchangeable in rating and dimensions for a. c. and d.c. currents, has been developed by the Industrial Controller Division, Square D Company, Milwaukee, Wisconsin. The maximum rating is 3-hp. It is of compact design, and the contactors have a positive mechanical interlock and magnetic safety latches to prevent accidental closing. It is arranged for either two-wire or three-wire control. The edgewise mounting of the movable contacts and the form of the arc compressors are a new principle of design for increasing the arc rupturing capacity, it is stated. The contactors are mounted on a steel panel. These contactors are designed as Class 8711 for a. c. and Class 7711 for d. c.

:: :: ::

New General Electric Splash-Proof Induction Motors.

A new line of splash-proof induction motors has been announced by the General Electric Company, Schenectady, N. Y. These motors are designed particularly for application in which open motor operation is handicapped by the presence of splashing or dripping liquids. The end shields are of special construction, the top half being solid to exclude dripping liquids. Cooling air enters through ventilating openings in the bottom half of the end shields, a special baffle, which extends to the center line of the motor shaft, preventing the entrance of splashing water into the windings. The motor frame is protected against the entrance of dripping water and liquids by a one-piece cover, which is fitted to the motor frame. The ventilating air, which enters through the end shield openings, is circulated over the end windings, across the motor frame, and out through louvres in the protective cover. A water-tight conduit box protects the motor leads against damage by dripping or splashing water.

HAVE YOU CONSIDERED THE QUESTION of High Draft Spinning, which, put more scientifically, means MORE PERFECT FIBRE CONTROL? Every spinner must eventually adopt it.

- H & B's System is of the simplest description, yet attains all the advantages that may be claimed by other more costly systems now on the market.
- Why not tackle the job right now? We can show you how to convert your Ring Frames with very little alteration to existing constructional detail.

H. & B. AMERICAN MACHINE CO.
PAWTUCKET, RHODE ISLAND

•

ATLANTA OFFICE
815 THE CITIZENS & SOUTHERN NAT'L BANK BUILDING

NEWS ITEMS *with a Textile Slant*

Martha Mills to Pay for Cotton Bagging.

Martha Mills, textile division of The B. F. Goodrich Company, Silvertown (near Thomaston), Georgia, has notified its cotton shippers that from now until July 31st of next year the company will pay for seven pounds of additional cotton per bale at the current cotton price if the bales received are 100 per cent cotton wrapped.

The Goodrich mill uses approximately 73,000 bales of cotton annually to produce 30,000,000 pounds of weftless cord for Goodrich tires. "The seriousness of the cotton situation at the present time has prompted this action," said Albert T. Matthews, vice-president and general manager of the Goodrich mills. "Because of the large carryover and the present price which is below cost of production, we feel that it is necessary to promote the increased use of cotton, particularly as applied to the cotton industry." It is believed that such action will stimulate similar action by other companies and that some relief from the present situation will prevail.

:: :: ::

Robert and Company Appoint Armistead.

Robert and Company, Inc., architects and engineers, Bona Allen Building, Atlanta, Ga., have announced the appointment of J. Warren Armistead, Jr., as head of their architectural department. Mr. Armistead is a member of the American Institute of Architects.

:: :: ::

Pfister Leaves Jacques Wolf; Will Head Own Company.

Dr. Alfred Pfister, president and treasurer of Jacques Wolf and Company, has resigned, and is spending two months abroad on a combined business and pleasure trip. Dr. Pfister, who has been one of the upstanding factors in the chemical industry, has sold his interests in the Jacques Wolf & Co., to Jacques Wolf, and will be associated, with his son, Hymo Pfister, in the Pfister Chemical Works, Palisades Park, N. J., beginning in September.

:: :: ::

Nopco Textile Men.

T. A. Printon and Dale S. Chamberlin, who represent the National Oil Products Company of Harrison, N. J., manufacturers of sulphonated, emulsifiable and soluble oils, in the textile industry are calling on southern and midwestern mills in this connection, consulting with them on their manufacturing problems. This is in line with the recently announced policy of the company to serve their customers by industries rather than by territorial location. In line with a policy of expansion, the company has recently increased its tank farm by the addition of two tanks, for the storage of raw materials; these tanks have a combined capacity of 200,000 gallons.

:: :: ::

Kron Appoints Representatives.

Announcement has been made by The Kron Co., of Bridgeport, Conn., of the following agency appointments for its line of industrial scales: Industrial & Commercial Scale Co., 121 North Brevard St., Charlotte, N. C.; J. Kirk Rowell, Urban Building, Louisville, Ky.; and Williams, Cole & Wolff, Inc., 3150 Commerce Building, 744 North Fourth St., Milwaukee, Wis. The Kron Co., which succeeds the American Kron Co., manufactures a complete line of automatic dial scales, and recently announced the re-designing and improving of the entire line.

:: :: ::

Preemo Durene.

The Durene Association of America has been advised by the Standard-Coosa-Thatcher Co., of Philadelphia and Chattanooga, one of its membership, that the specially prepared durene "Preemo" yarns produced by this company and heretofore known as super mercerized Preemo will in the future be called Preemo Durene at the urgence of many buyers who have indicated that the quality standard guaranteed by the quality identifying term durene has become a distinct sales aid. Standard-Coosa-Thatcher Preemo has always been durene given special preparation, but in the past the company has not identified these yarns as durene but merely as "super quality". The name Preemo will of course be used by Standard-Coosa-Thatcher in advertising and marketing its Preemo Durene.

:: :: ::

State College Textile School Installs Plush Jacquard.

Thomas Halton's Sons, Philadelphia, Pa., have installed in the Textile School of North Carolina State College a Jacquard for the plush loom which A. W. Buhlman, New York textile engineer, imported from Germany and presented to the textile school. The installation of this Jacquard enables the textile school to give its students actual practical experience in weaving fancy plush fabrics. This is especially advantageous at this time, it is pointed out, as the consumption of plush fabrics has rapidly increased in the furniture and automobile industries during the past few years.

:: :: ::

Roller-Smith Appoints Alfred Suter.

The Roller Smith Company, 233 Broadway, New York City, have announced the appointment of Alfred Suter, 200 5th Avenue, New York City as sole distributor in the United States of Roller-Smith textile balances. Mr. Suter is one of the best known men in the country in the textile field and has specialized in textile equipment for many years. The Roller-Smith Company developed its precision balances for textile applications in a wide variety of forms and with attachments to provide for all measurements.

:: :: ::

Yarn Association Golf Tournament at Roaring Gap, Sept. 16th, 17th.

The annual golf tournament of the Carolina Yarn Association will be held at Roaring Gap, N. C., on Friday and Saturday, September 16th and 17th, it is announced by C. C. Harding, president of the association, following a meeting of the association in Charlotte. The entertainment and banquet has been arranged for Saturday evening and the golf tournament will take place on Friday and Saturday and trophies will be awarded to the successful contestants. Frank Shannonhouse is vice-president, H. H. Cannon, secretary, Joseph R. Morton, treasurer, Fred Hallenback, chairman of membership committee, W. T. Cheatham, chairman tournament committee, and Fred Lemond, chairman of the entertainment committee, of the association.

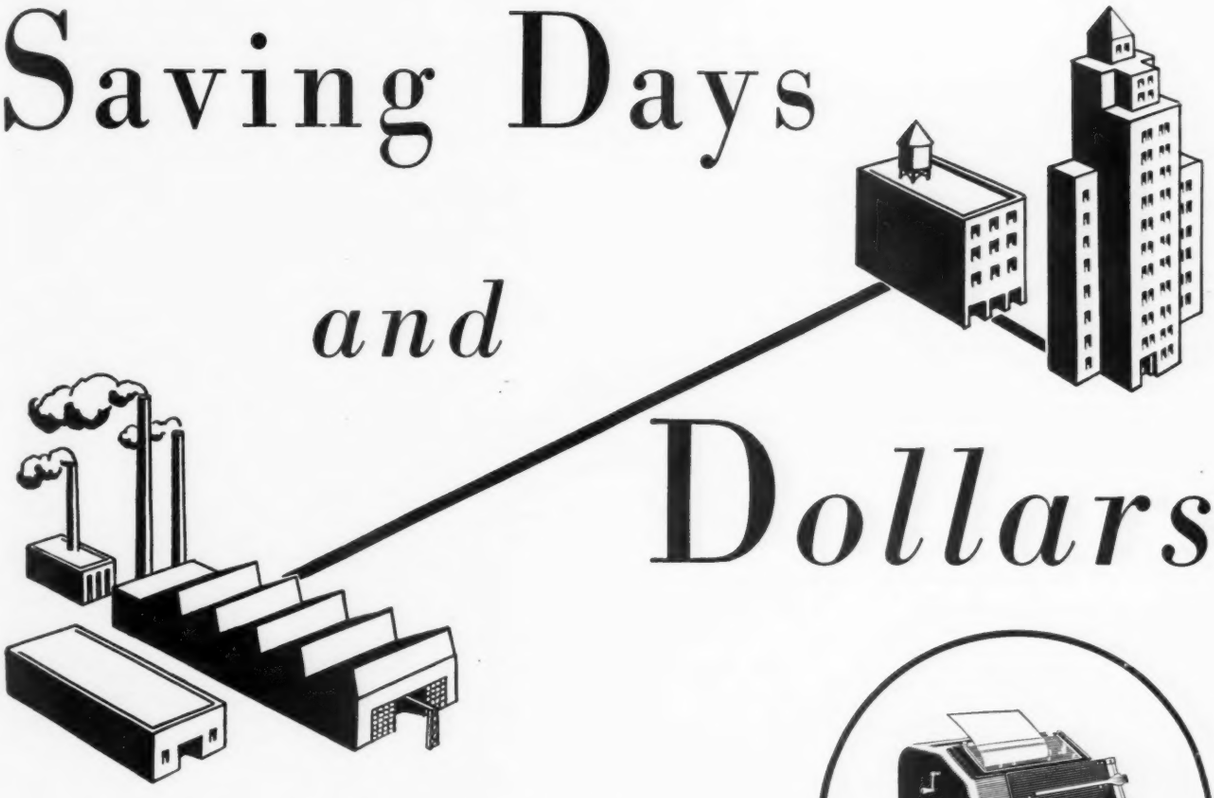
:: :: ::

Worthington Consolidates Cincinnati With Buffalo Plant.

Worthington Pump and Machinery Corporation with executive offices at 2 Park Avenue, New York, and general offices at their Harrison, N. J., works, has announced the decision to transfer and consolidate the designing, engineering and manufacturing activities formerly carried on at their Cincinnati, Ohio, works with those of their Buffalo, N. Y., manufacturing plant.

During the past five years it has been the corporation's policy to foster the interchange of work between its various manufacturing establishments and to further this coordination by an

Saving Days *and* Dollars



Private Line Teletypewriter Service speeds deliveries—produces many economies for Celanese Corporation

CELANESE CORPORATION OF AMERICA successfully meets today's changing market conditions, last-minute buying, and vigorous competition by quicker customer service—speedier filling of orders. Through the use of private line Teletypewriter Service—*typing by wire*—it offers almost instant deliveries to its largest fabric customers in the metropolitan New York area.

Private line Teletypewriter Service connects three of the company's most important units: the New York sales office, New York fabric warehouse, and factory at Amcelle, Md. Two-way, *typewritten* messages are exchanged instantly.

Fabric orders received at the sales office are sent immediately by Teletypewriter to the warehouse and deliveries can usually be made in New York *within one hour*. On orders shipped from Amcelle, *days are cut* from the time previously required to make deliveries.

The "form writing" feature of Teletypewriter Service brings further economies. Mechanisms on the connected Teletypewriters hold order forms in the same relative position; thus, details of color, size, quantity, texture, shipping and billing information are reproduced in the same spaces on both sending and receiving machines. Much clerical expense is eliminated; costly verification and duplication done away with.

Teletypewriters save time, cut costs for companies of every size. Without charge, your local Bell Telephone Company will show you how this modern business aid may help *your* company. Call the Business Office.

interchange of key men. In order to fully conserve its position, skill and experience and to assure satisfactory service to its customers, necessary members of the Cincinnati works organization are being transferred to Buffalo. Sufficient time is being provided for the move so that service to customers will be uninterrupted.

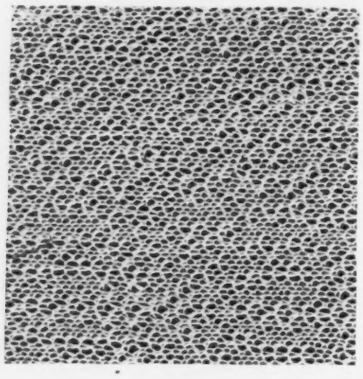
For the present, the Cincinnati plant equipment will remain intact. This move in no way affects Worthington's Cincinnati district sales office which is under the management of Earl Vinnedge.

:: :: ::

Chard-O-Crepe Hosiery.

Tubize-Chatillon Corporation, 2 Park Avenue, New York City, have released the following announcement: "Something new and tricky in stockings has arrived. It is Chard-O-Crepe hosiery, with a crinkly, unusual texture, like nothing you ever saw before, and made of Chardonize dull luster yarn. You can't classify Chard O-Crepe stockings, for they are neither plain nor mesh. Their surface looks exactly like a soft, dull crepe. Although the stockings are knitted and very sheer, the crepey appearance is so pronounced as almost to suggest a woven cloth. Thus the stockings tie in admirably with the current vogue for soft "chalky", crepe-like dress fabrics. Should a Chard-O-Crepe stocking develop a run, it would go only upward, never down, thus the garter run, most famous of them all, will never even start downward toward the knee."

A photograph of a pair of these stockings, which were made by the Hanes Hosiery Mills, who developed the crepe texture, and an enlargement of this texture, will be seen in the accompanying illustration.

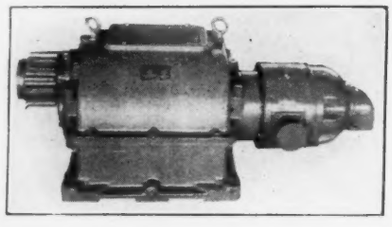


Sample of Chard-o-crepe; below, stockings on wearer . . .

:: :: ::

New Motorized Speed Reducer.

A new motorized speed reducer has recently been added to the line of enclosed speed reducing units built by Link-Belt Company, Philadelphia, Pa. One installation is a triple reduction unit, with a speed ratio of 312.2 to 1. The motor shaft (which extends into the reducer housing) operates at 1,165 r.p.m., and the low speed shaft at only 3.75 r.p.m. This installation drives sludge collectors at New York City's new sewage treatment plant on Ward Island.



Motorized speed reducer.

The company points out that the advantages of using a motor with extended shaft, mounted in this manner, are increased efficiency and compactness, reducing the floor space required and the elimination of high-speed motor shaft coupling. Roller bearings and continuous-tooth herringbone gears are used. The gears run in oil for providing automatic lubrication of the gears and bearings.

:: :: ::

Recommendations for Storing and Protecting Rubber Belting.

During the present period, when many industrial plants are shut down, it is essential that rubber belting be protected from deterioration during the shut-down period if economical operating costs are to be enjoyed when plants are re-opened, the B. F. Goodrich Rubber Company, Akron, Ohio, points out. After an exhaustive study on the storage of rubber products, the company recommends:

"Belts should be stored in a dark, cool (not over 70 degrees F.) place which is maintained under humidity conditions which are not too dry. This does not mean that belts should be stored with one end standing wet, but the air of the warehouse should not be too dry.

"Direct sunlight and warm air should be avoided wherever possible.

"To further protect belting in storage the following preparation may be used to treat the edges and exposed face of belts in roll form: One quart shellac, one pint alcohol, one and one-half quarts household ammonia, and three quarts of water. This solution can be quickly applied with a whitewash brush. One gallon should cover about 300 square feet. It can be purchased already mixed, combined with special age-resisting chemicals.

"Where plant owners do not feel the shut-down period will be of sufficient duration to take off the belts and roll them up, it is suggested that the installation be checked to make certain tension has been removed."

:: :: ::

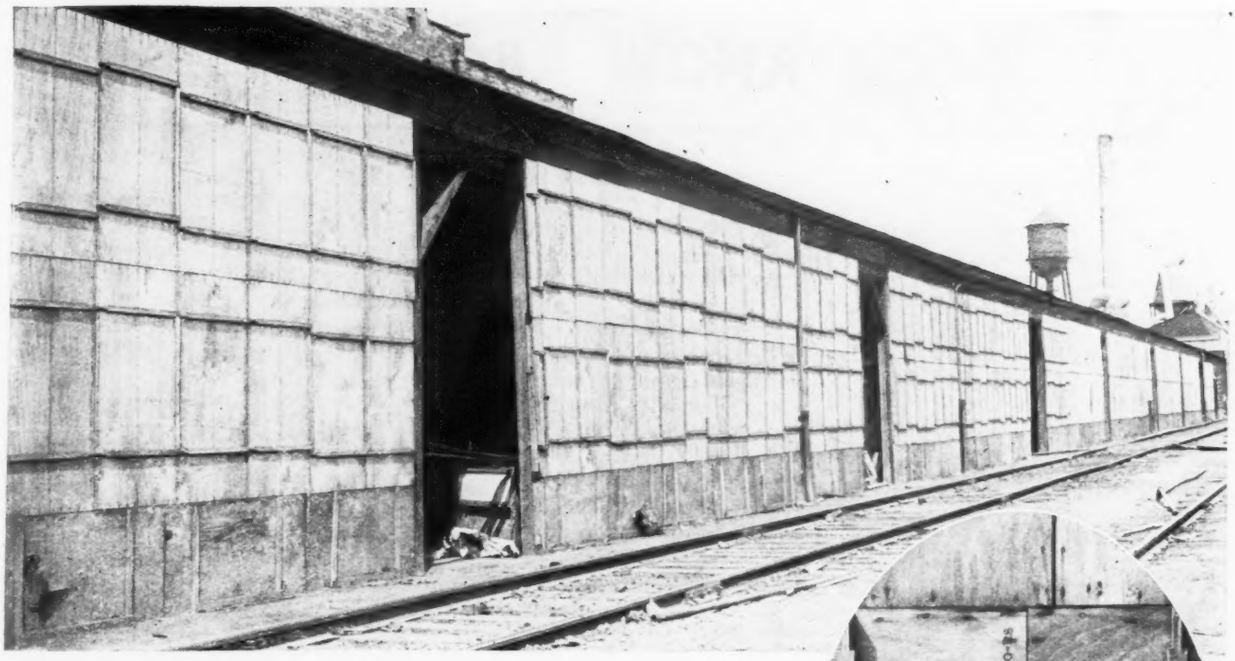
New Dirigible Wears Cotton.

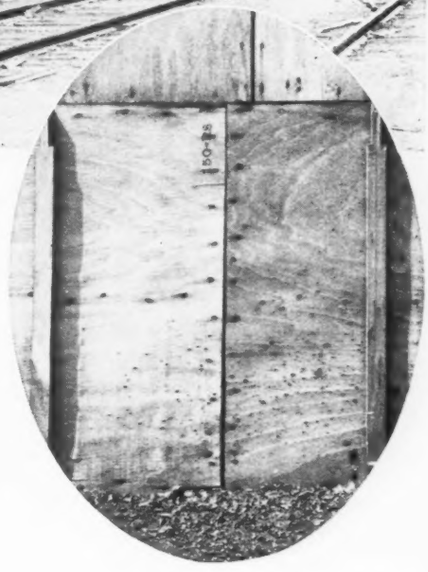
When the huge airship "Macon," the Navy's newest dirigible, soars on its trial trip, it will wing its way through the air on 92,000 square yards of cotton. The immensity of the "Macon's" cotton requirements will be more readily understood, according to the Cotton-Textile Institute, in terms of a single strip one yard wide which would be more than 50 miles in length. As another easily-grasped illustration, the "Macon's" cotton fabric, if used as covering for shade-grown crops, would serve a farm of approximately twenty acres.

For the other covering of the airship whose construction is nearing completion, 36,000 square yards of cotton fabric is required. It might be assumed from its silvery appearance that this covering is metal, but the metallic sheen results from treatment of the cotton fabric with four coats of acetate cellulose "dope," two of them containing aluminum powder. This treatment tightens the fabric over the frame, gives it smoothness and waterproof qualities, and deflects the sun's rays.

The gas cells have even greater cotton requirements, 56,000 square yards of fabric being used for this purpose. This fabric is rubberized and every thread, both for the envelope and gas cells, was spun and woven in this country. The strength and durability of cotton, demonstrated by years of service in all types of airships including the United States Navy dirigible "Akron," is further emphasized by the fact that the fabric for the "Macon's" outer covering weighs only three ounces per square yard, and for the gas cells, two ounces.

PLYWOOD BOXES





A Severe Test on Shipping Containers . . .

In September, 1931, Grigsby-Grunow Co. (Manufacturers of Majestic radios and refrigerators) found it necessary to inclose a loading platform. Their stock of LAUXEIN GLUED plywood box panels appealed to them for this purpose.

The above photographs, taken May 21, 1932, show the wall of plywood box panels still in use—after more than EIGHT MONTHS exposure to **"Chicago weather."**

The panels have never been given a protective coating of paint, varnish or any other material.

Your product deserves the best in shipping containers. The extra protection offered by LAUXEIN glued plywood boxes is worthy of your consideration.

A postcard will bring you the name of a plywood box manufacturer near you, who uses **LAUXEIN** glue exclusively. We believe you will find his prices no higher than those of other plywood box manufacturers.

Specify* LAUXEIN GLUE *on your next plywood box order

I. F. LAUCKS, INC. . . . . BLOOMINGTON, ILLINOIS

"Water resistant boxes deliver the goods"

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

PAUL F. HADDOCK is now southern district manager of American Cyanamid & Chemical Co., which operates A. Klipstein & Co., for whom Mr. Haddock has been southern manager for 16 years, and 12 other chemical companies. Mr. Haddock is chairman of the dyers', bleachers' and finishers' division of the Southern Textile Association.

CLAYTON M. DOCKINS has resigned as overseer of the cloth room at the Sibley Mfg. Co., Augusta, Ga., and has moved to his farm, R. F. D. No. 3, Hephzibah, Ga. He had been overseer at Sibley for 13 years; and is being succeeded there by his son, ROY S. DOCKINS.

FRANK W. GURRY, superintendent of the Clinton Cotton Mills, Clinton, S. C., recently resigned effective August 1st.

FREDERICK C. NIEDERHAUSER has been elected vice president in charge of operations, and HOWARD N. CAPPEL, vice-president in charge of sales, of Tubize-Chatillon Corporation. Until the recently announced appointment of JOHN E. BASSILL as president, Mr. Niederhauser has been assistant to Mr. Bassill, who was previously general manager. Mr. Cappel has been general sales manager of the company. Both men have had extended experience in the rayon industry, having joined it in the early stages of its development.

J. O. WILLIAMS, formerly superintendent of the Spencer Corp., Spindale, N. C., is general superintendent of the recently re-organized Green River Mills, Inc., Tuxedo, N. C., and the Pisgah Cotton Mills, Brevard, N. C., both of which will be operated by W. M. SHERARD, of Hendersonville, N. C., as president of the Green River and general manager of Pisgah.

GEORGE T. SECKEL, JR., of Utica, N. Y., has been made vice-president of the Gardiner-Waring Company, Florence, Ala., manufacturers of underwear.

GEORGE O. HAMLIN recently resigned as general sales manager of The Viscose Company, after an extended period of service in that position. He has been a pioneer in the development of the American rayon industry, having been connected with it since 1905, when he was associated with a Philadelphia concern which was succeeded by The Viscose Company.

W. C. APPLETON succeeds Mr. Hamlin as general sales manager. He has been assistant to Mr. Hamlin for the past four years. At one time Mr. Appleton was assistant to the treasurer of the Whitman Mills, New Bedford, Mass., and was later in charge of the Providence office of Viscose, beginning in 1925. He held this position until 1928, when he removed to New York as assistant to Mr. Hamlin.

THAYER P. GATES has been made an executive of the Riverside & Dan River Cotton Mills, Danville, Va. He has recently been a textile consulting specialist with headquarters in New York City, and was previously a resident manager of the Sayles Bleachery. It is understood that he is in charge of bleaching and finishing at the Danville plants.

W. B. SHANNON has become overseer of weaving at the Victor plant of the Victor-Monaghan Company, at Greer, S. C.

W. C. HILL, of Norfolk, Va., has been made president of the Fountain Cotton Mills, Tarboro, N. C. JOHN H. RODGERS, formerly vice-president, is president of Hart Cotton Mills there. These positions were formerly held by the late B. MABRY HART.

:: :: ::

Frank G. North Forms Sizing and Finishing Materials Firm.

Frank G. North, of Atlanta, Ga., has announced the organization of Frank G. North, Inc., to manufacture and furnish the southern mills with sizing and finishing materials. The plant, already in operation, is located at Marietta, Ga., eighteen miles from Atlanta.

Associated with Mr. North are Walter W. Greer and S. M. Smith. R. E. Howell is chemist and production manager. Mr. North states the company will continue to furnish quality products to the mills such as he has supplied to them for many years. Mr. North will continue his duties as president of the Atlanta Harness & Reed Manufacturing Co., Atlanta, Ga.

The address of Frank G. North, Inc., is Box 92, Marietta, Ga., and also Box 844, Atlanta, Ga.

Obituary.

WALTER S. DILLING, vice-president of the Dilling Cotton Mills, Kings Mountain, N. C., died in a Charlotte, N. C., hospital on July 5th, following a critical illness of two weeks. Mr. Dilling was one of the leading textile manufacturers of the South. He was born in Kings Mountain in 1881, the son of Captain Fresno Dilling and Sallie Ann Falls Dilling. He was educated in the local schools and at Erskine College, and entered the textile business with his father about fifteen years ago, at which time he was cashier of the Kings Mountain Bank. He is survived by Mrs. Dilling and two children, Mrs. B. W. Gillespie, of Kings Mountain, and Robert F. Dilling, of Greenville, S. C.

JAMES BARRETT, a member of the sales staff of Worthington Pump and Machinery Corp., died on June 22 at the Columbia Presbyterian Medical Center in New York City. Mr. Barrett, who resided in Brooklyn, was a veteran employee of Worthington, having served it in various capacities for forty years. He planned the pumping equipment for many of the city's important buildings, including the hospital in which he died, New York Hospital and Cornell Medical College, New York Life Building, Equitable Building, Salmon Tower, New Waldorf-Astoria Hotel, and R. H. Macy Department Store. He was born in Canada, October 14, 1866, and is survived by seven children.

JAMES ALEXANDER SORRELLS, for many years superintendent of the Gainesville Cotton Mills, at Gainsville, Ga., passed away suddenly following a heart attack on July 17th, at his home in Gainesville. Mr. Sorrells had retired as superintendent at the Gainesville Cotton Mills on April 1st, prior to which time he had been connected with these mills for more than thirty years. He was 55 years of age, and is survived by Mrs. Sorrells and two sons and two daughters. A son, J. A. SORRELLS, JR., is connected with the N. Y. & N. J. Lubricant Company.

THOMAS T. SMTH, secretary of Cannon Mils Co., Kannapolis, N. C., died as a result of a heart attack on July 18th. Mr. Smith was 58 years of age. He was for a number of years private secretary to the late James W. Cannon-later being made a mill secretary.

50% GREATER PRODUCTION

25% LESS MACHINERY COSTS

BARBER-COLMAN

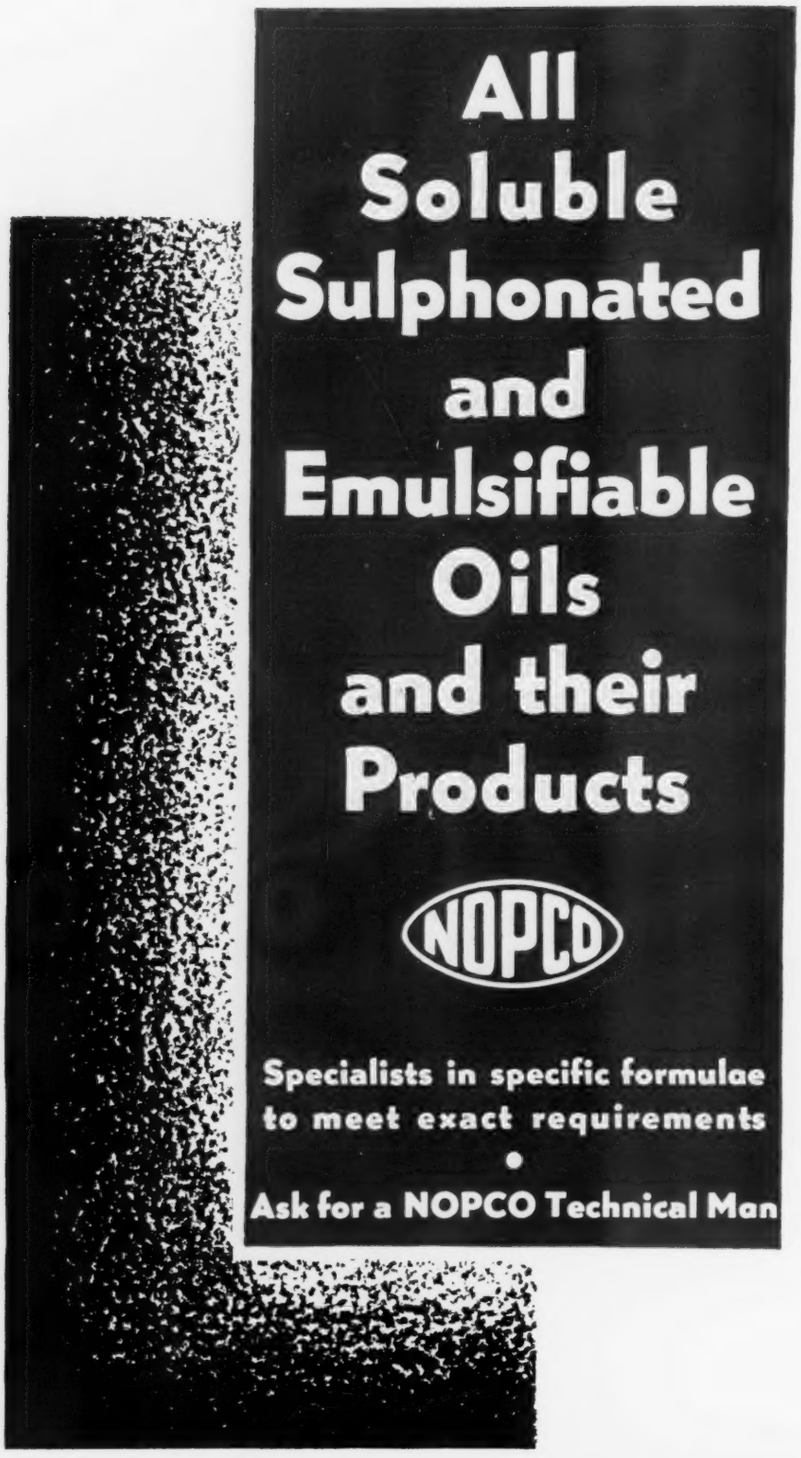
IMPROVED

SPOOLERS *AND* WARPERS

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS

FRAMINGHAM, MASSACHUSETTS GREENVILLE, SOUTH CAROLINA

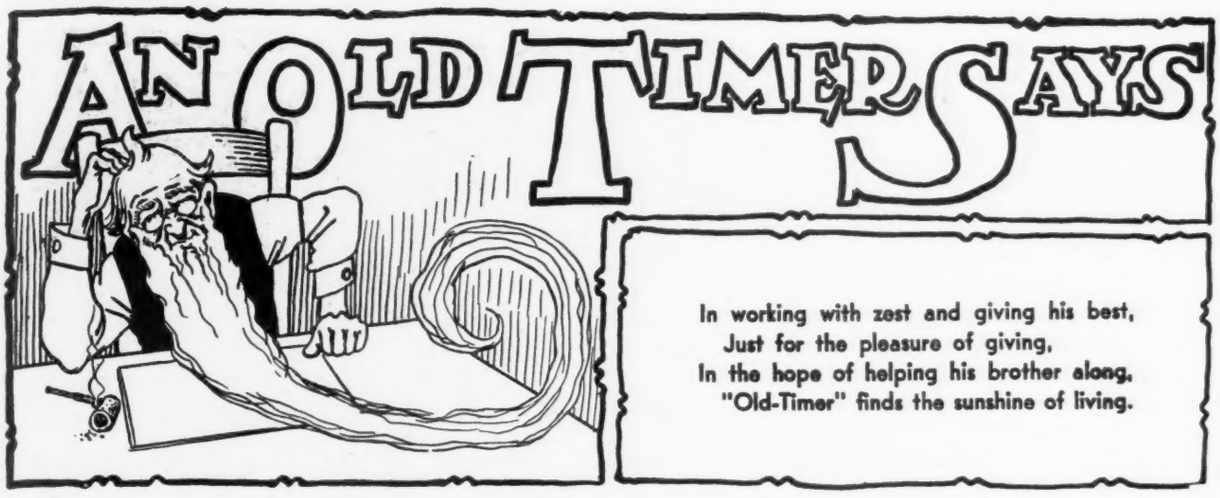


NATIONAL OIL PRODUCTS CO.

Boston
Chicago

HARRISON, N. J.

San Francisco
Hamburg, Germany


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Some More Random Thoughts

THIS collection of random thoughts interrupts the series "The Story of Old-Timer's Methods of Working and Management", which will be resumed next month. Each reader is requested to send us his vote as to whether he wishes the series to be published without interruption, or broken occasionally. Thanks . . . . . .

"Gosh! That man is a genius, isn't he?"

When you hear such a remark about some very successful man, do you ever stop to think that there are probably hundreds of men who have just about as much brains as the so-called genius has? But, these hundreds are lacking in some of the qualities with which the genius is endowed and which contribute to his success. That man, the genius, has the bull-dog tenacity, the persistence, the courage, the plodding personal desire to succeed, in spite of obstacles—and all the big words you can use would describe no better what I am trying to say than can be said, and said accurately, in just one word, one very simple word, a rather mean little word, I'll admit, but oh how true it is!

How many people there are, to whom this word applies, who would feel very much insulted if it were applied to them; however, it is responsible for more "resignations" than any one thing of which I know. It is the cause of more business men going broke than is any other defect in a human being; it is the cause of most overseers and superintendents losing their jobs. There are literally hundreds of men who would measure up to the genius class, about which we started to talk, were it not for that little word of only four letters.

(Stop looking down at the bottom, trying to find out what the word is before you read on down to it).

You think I am drawing this out, don't you? Sure I am. I will do anything in my power to get you to remember this appeal. Yes, I would carry this case to the higher courts—when I said *appeal*, it made me think of appealing to a higher court—if there were some way by which I could make it stick in your brain; some way to get you to realize that it might happen to apply to *you* just a bit.

Now don't get sore, when you do come to that ugly word of four letters, and tear your magazine up or cuss OLD-TIMER out. That won't hurt OLD-TIMER; nor will it do you any good. All I ask is: Think about it tomorrow and next day, and it will not do any harm to think about it several years from now, because as people grow older, they are more susceptible to this monster—a little word, but a monster in thousands of ways—it is a monster to overcome.

Oh well, we could talk about it all night, and then only be getting a good start. OLD-TIMER could give you many specific instances where this qualification has been the obstacle of promising careers of young men, and the down-fall of many middle-aged and old men who let it creep up on them.

The dictionary says that the word means "averse to labor" or just plain *"lazy"*.

Wait a minute now, OLD-TIMER did not say *you* were lazy; you figure that out for yourself, but *be honest.* Will you?

* * *

The most real things in the world are things men cannot see. A rather odd statement, in fact, OLD-TIMER *would not blame you much if you classed it as foolish, but the more you think of it, the deeper it gets. Just to get you started: Think back to your kid days—how real was Santa Claus to you? (I mean, of course, before you found out) and still you had never seen him.*

* * *

When have you taken stock? No, I don't mean the stock you took the first of the year; I mean *"yourself"*. That is, when have you taken stock of *"yourself"?* Really, I have known a lot of fellows who were too honest to put down a pound or a dollar, in taking inventory, that did not belong there, but, gee whiz! how they would cheat when taking stock of *"themselves"*.

TEXROPE MULTIPLE V-BELT DRIVES

operate entirely without oil, grease or belt dressings. They may be located overhead and positively eliminate seconds or rejects. Oil stains are a thing of the past where Texrope Drives are used. Lint and moisture does not affect their performance and once installed they require very little attention. To be assured of perfects at all times install Texrope Drives. They will eliminate all oil and oil-maintenance expense.

May we send you Bulletin No. 1228-K showing other advantages? Address the nearest District Office or Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

—another B. F. Goodrich Product

Texrope Belts are made by B. F. Goodrich for Allis-Chalmers. Complete stocks are carried in Allis-Chalmers warehouses all over the globe. When your belts finally need replacement the nearest Allis-Chalmers office will serve you promptly.

ORIGINATED BY ALLIS-CHALMERS
TEXROPE DRIVES
THE DRIVES THAT REVOLUTIONIZED TRANSMISSION PRACTICE • • •

It takes a long time to develop a team, Mr. Overseer; what are you doing to develop your section men into a team?; when have you seen one lending a hand to his fellow worker?

Mr. Superintendent, what are you doing to develop a team of overseers; when have you spent a week that one of them did not take just a little dig, yes, a nasty dig, at one of the others. Darn! they are worse than—Well, I won't say it, but, how do you feel about it?

* * *

I once fooled with base ball a little and came to the conclusion that I had much rather have a "star team" than a team of "stars".

Oh, that word co-operation (team work) means a lot; in fact, very few people ever learn its true meaning.

* * *

If some one should shout to you: Hey there! You are sitting on a stick of dynamite! You would jump quickly, but here OLD-TIMER *has been shouting on this page to you for almost ten years that you are sitting on a gold mine, and you will not budge. (I think I will get me a stick of dynamite).*

The gold mine you are sitting on, brother, is "Knowledge". You are not only sitting on it, holding it down, but it is all around you, trying to get into that brain of yours. It is in the textile magazines, the correspondence schools, the free libraries, the personal experiences of your friends, and you can have it all for just a little work at night.

* * *

Can you give orders without leaving that overbearing feeling in the man you expect to carry them out?

Do you give credit where credit is due?

When interviewing subordinates can you make them feel at ease so they can really give you the information you desire?

Are you patient when discussing matters with a man who is stubborn and thinks he knows it all?

Can you admit your own mistakes?

Can you control your temper, at least most of the time?

If you can honestly answer these few questions in the affirmative—you are on your way, Mr. Overseer, and Mr. Superintendent, to a better job.

"Getting even" is no occupation for a real man.

The fellow who is always harboring the mean thought of "getting even" with his overseer, his superintendent or an operative who works for him, always gets the worst end of the bargain.

* * *

The word "salesman" conveys to the mind of the average overseer or superintendent a man who calls upon him to sell sizing or supplies of some kind. But all overseers and superintendents are salesmen when you realize you are trying to sell your services to your employer for the highest salary you can command.

Just what class salesman are you anyway? Are you giving your customer (your employer) a good value for his money (which is your salary)?

Why not try giving him a little more for his money, more than he can get from any other overseer or superintendent? Then if he can't give you more in return, very likely someone else will.

You don't have to publish in the papers the fact that you are running your job better than other men on the same class of work. No! If you are an outstanding success, other employers will surely know it.

* * *

The most valuable asset in the world is time. If you will use it to improve yourself, your education, your practical knowledge.

* * *

So many times you have said to yourself, "If I had only stopped to think, I would not have done so and so that way."

It takes a cool head to "think" out a definite plan *before* acting. So many of us act on first impulse, then see our mistakes afterward.

* * *

Remember how you were "pepped up" that time the boss complimented you so highly?

Well, when have you complimented any of the men or women who work for you?

* * *

You will always be "little" if you never associate with bigger men than yourself. The average man who is promoted to overseer from the ranks, keeps the same associates as he has always had and never makes a very high class overseer.

* * *

Have you ever seen a man become successful by carrying a rabbit's foot? No, partner. Success comes to the man who is willing to apply himself earnestly to his profession; a man who is willing to spend his spare time in constructive studying in order to gain knowledge, more knowledge than his competitor has. Then knowledge with practical application will put any man ahead of his present position.

* * *

If we overseers and superintendents could only find some way to get operatives to realize that *there is no known way by which labor can avoid paying the cost of waste,* it would be one of the greatest achievements which management has accomplished in years.

* * *

You don't have to run after a reputation.

Beat the other fellow, and reputation will run after you.

* * *

Success is invariably the result of knowledge and practical experience. There are two ways to get it. One is to just drift along, picking it up here and there by contact with other people and the experiences you come in contact with. Men of this type sometimes succeed but the percentage is small.

The other way—the sure way—if you have the backbone—the determination to start it and *keep it up,* is to follow a systematic course of study.

* * *

If you spend all you earn, don't call some other fellow a fool. Because you are it.

* * *

"Even in the dictionary the word success comes after the word hustle."

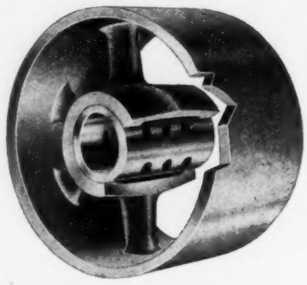
THE BRONZE SELF-OILING BUSHINGS WITH CAPILLARY FEEDERS

These famous bushings require oiling only once or twice yearly. No waste of oil, no drippage to damage stock, belts or floors.
Standard for over fifteen years with leading textile machinery manufacturers and textile mills.

Write for Descriptive Literature

MOCCASIN BUSHING COMPANY, CHATTANOOGA, TENN.

Brass and Bronze Castings of Every Description.



MOCCASIN BUSHINGS

CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY

CLINTON, IOWA

QUALITY SERVICE

SEYDEL-WOOLLEY CO.

SIZING FINISHING

WARP SIZING SPECIALISTS

SEYCO SCIENTIFICALLY PREPARED TEXTILE CHEMICALS SEYCO

A CONCERN IS KNOWN BY THE CUSTOMERS IT KEEPS—

FINISHING SIZING

ATLANTA, GA.

Pays Twice Its Cost

A Loper contract contains the guarantee that its service will pay you at least twice the amount it costs you.

Let us give you references that prove we accomplish even more than we guarantee.

Fully 25% of All Cotton Textile Spindles in the U. S. are operated on the Loper System.

Ralph E. Loper Co.

INDUSTRIAL ENGINEERS

Specialists in Textile Costs Over 19 Years

FALL RIVER, MASS. GREENVILLE, S. C.

ATLANTA HARNESS & REED MANUFACTURING CO.

MANUFACTURERS OF

HARNESS

COTTON — MAIL EYE
SELVAGES
SPECIAL TWIST CABLE

REEDS

COTTON — DUCK
ALL METAL
SLASHER-COMBS-STRIKING

NUMBERED DUCK ALUMINUM HEDDLE FRAMES

All Standard Types Heddle Frames and Heddle Frame Parts

Satisfactory Service Since 1919

Main 0517-8 ATLANTA, GEORGIA P. O. Box 1375

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Another Opinion on Round and Square Point Travelers.

EDITOR COTTON:

I read with interest the question submitted by "CONTRIBUTOR NO. 6072" on page 73 of the June issue of COTTON, asking for a discussion as to the use of round and square point travelers. I believe that he brought out in his letter a problem that is not clearly understood and which could stand, as he suggested, a very thorough treatment of traveler styles, shapes, weights, performances, etc., by some experienced traveler manufacturer or engineer, as also the experiences of many practical overseers of spinning. There are so many various styles, circles, widths of travelers, lengths of horns, etc., that have been tried out, and yet I know of no definite *approximate standard* showing the type of traveler as to weight, circle and type to be used for a certain flange for a certain count, etc.

Quite recently an oval-shaped traveler has been put out and possibly some of COTTON'S readers may be able to discuss their experiences with this traveler.

I have always used a square-point traveler. I have attempted to use a round-point traveler, believing, as "CONTRIBUTOR NO. 6072" mentioned, that a heavier round-point traveler could be used than a square-point traveler, but I finally went back to the square-point, as I got better spinning with it. I attributed this to the fact that the rings had been broken in with square-point travelers, and that better results were secured by keeping in use what was started with. On new rings it may be a matter of choice and opinion.

Doubtless more spinners will feel that there is more of a tendency for round-point travelers to unthread at the doff. I believe this is due to the less resistance offered by the ring surface to the traveler, and probably the general shape of the traveler, as "CONTRIBUTOR NO. 6072" states. Also, as he points out, the size of the circle is a very important factor as regards unthreading, and the smaller the circle that can be run, I feel, the less unthreading there will be, and there is also a steadier passage of the traveler around the ring and less flying off of the traveler. The difficulty comes in the heavier number travelers with a very small circle, in the handling when putting on the rings and in breaking them off when changing travelers.

A point on which I should like to hear from "CONTRIBUTOR NO. 6072" and other COTTON readers, is the way of determining the circle of a traveler. How do you decide just what circle is correct for a certain number of traveler, for a certain yarn, certain flange, etc.—leaving the traveler representative out of it?

Another point that I would like to see discussed is in the case where yarns of different counts, say a range of 16s to 80s, possibly, are occasionally spun on the same size ring, say 1⅝-inch, No. 2 flange. What circle should one use to cover this range of numbers? If different circles are selected to cover the different numbers, what is the effect on the spinning when the traveler has to assume a new track quite frequently? In other words, where only one or two numbers are being spun, a circle for those numbers, flange, and ring size may be determined so that it will work fine, but what are the opinions of the readers when frequent changes with quite a range of numbers are necessary?

I believe that a round-point traveler has more of a tendency to dig into the ring than a square-point traveler; although the resistance offered to the round point by the ring, when considered in weight to weight for a square-pointed traveler, seems to contradict this statement, but I still feel that the sharper point of the round or trowel pointed traveler tends to wear the rings faster. There is another point to note in that many rings when spoiled are "wavy"; this waviness does not seem to be where the point strikes so this would eliminate the point question.

Some spinners feel that very soon after running, a round-point traveler assumes the square-point shape, whereas "CONTRIBUTOR NO. 6072" claims the reverse is true, that the square-point soon assumes the round shape. What are the opinions of other readers?

Another interesting point is the wear of the traveler. Examine some yourself and you will be surprised. Take some of different circles from different yarns, from different rings, see if the wear always seems to be at the same place, and then write and tell us your story. One of COTTON'S readers states that the only wear is where the yarn runs through. What cuts a race that is very often seen on the outside of the ring? What causes a waviness on the inside of the ring? Both of these factors indicate traveler contact. As I understand the action of the traveler, centrifugal force tends to throw the traveler outward, yarn pull tends to lift the traveler upward

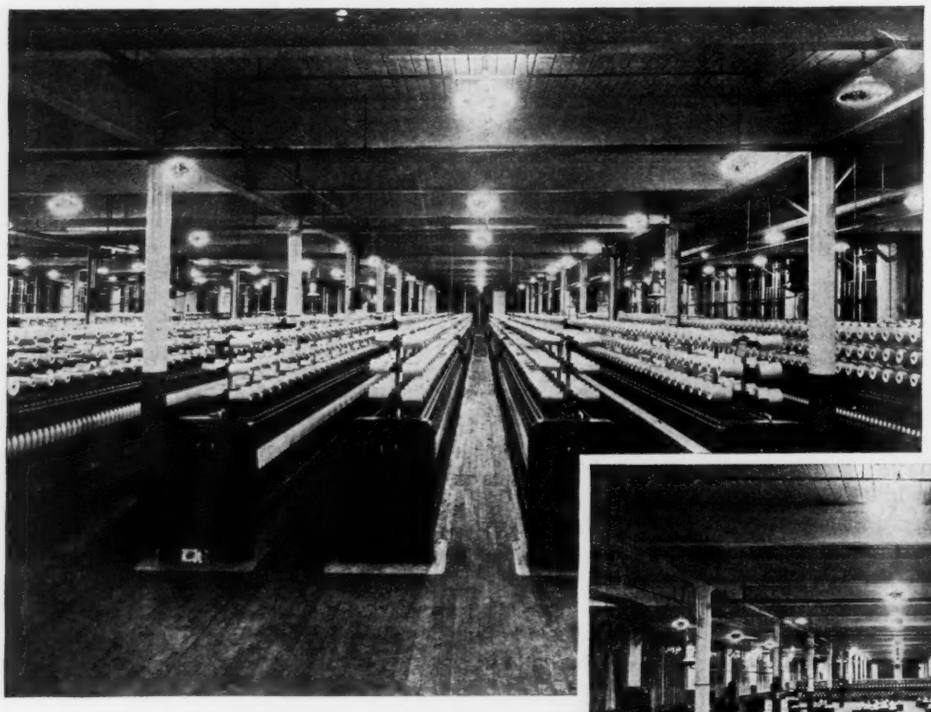
◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

• OUTSTANDING LIGHTING

for this OUTSTANDING NEW COTTON MILL



No. 1. Close up of machines in Clark Thread Company's "Spinning" and "Winding" room showing excellence of group lighting provided by 300 watt General Electric MAZDA lamps in Glassteel diffusers.

No. 2. Comprehensive view of Clark Thread Company's "Spinning" and "Winding" room shows how 300 watt General Electric MAZDA lamps give pleasant, efficient general overhead lighting.

• CLARK THREAD COMPANY BELIEVES IN GOOD LIGHT...AND PLENTY OF IT . . . .

THE new plant of the Clark Thread Company at Austell, Ga.,—a combed yarn mill of 40,308 spindles for the manufacture of high quality, long length sewing thread—is the outstanding new mill in the cotton manufacturing division of the industry—and an outstanding example of modern mill lighting.

"Spinning" and "Winding" rooms are lighted with 300-watt General Electric MAZDA lamps in glassteel diffusers on 16 foot centers—mounting height 14 feet. An average lighting intensity of 11 foot candles is obtained. Note the high intensity of light and the absence of harsh glare and objectionable shadows, on the group of machines in picture No. 1. Note how the general overhead lighting gives a cheerful, pleasant working area in picture No. 2.

Illumination like this assures the Clark Thread Company increased production, decreased spoilage, improved working conditions and a general improvement in efficiency.

Modernized lighting will do the same for you. Our engineers will work with you, without charge, on plans for new and improved lighting in your mill or to improve the lighting of your present system. Write to General Electric Company, Nela Park, Cleveland, Ohio.

Hear the "G. E. Circle" . . . the woman's club-of-the-air . . . over National Broadcasting Company's coast-to-coast network of 38 stations, at twelve, noon, Eastern Daylight Saving Time, every week-day but Saturday.

GENERAL ELECTRIC

MAZDA LAMPS

and inward; the traveler flying outward wears against the inside of the ring, a large circle and long horn tends to permit the traveler to come in contact with the outside of the ring.

I hope this will create a further discussion on the part of your readers, for there is certainly ample room for a discussion on this subject.

CONTRIBUTOR NO. 6135.

A Handy "Kink" for Drawing Frames.

A simply constructed device for guiding the ends of sliver to prevent stretching.

EDITOR COTTON:

We are using at this mill on our drawing frames a "kink" which works out very satisfactorily for us and I thought it might be of interest to some of your readers who are not now using it. The accompanying sketches illustrate it very clearly. I refer to racks or frames which are placed at the back of the frame, on which the strands of sliver pull over in order to prevent excessive tension on the sliver.

The reason for the original installation of these racks or frames is rather obscure, but the benefits derived therefrom are very real and apparent. As near as I can find out, the idea was to prevent the drawing sliver from dragging over itself on the full cans. If you will notice the drawing coming from the top of a full can, you will see that a great many of the fibers have been pulled out of parallel and turned back upon themselves almost in a hook shape. While this is apparently a very small matter it gave a start to this idea and led to the discovery of some very decided benefits which are being derived from the use of this idea.

The parts are very simple, consisting of (See Fig. I.) *A*, a piece of ¾-inch pipe, sufficient in length to reach about 16 inches above the tops of the cans, with a piece of 3/16-inch X 1-inch flat iron welded to the top of this pipe at an angle sufficient to make the front end about five inches lower than the back end. This piece is of sufficient length to accommodate three notches spaced so that when the rods are placed in them they will come directly over the fronts of the back three rows of cans in the creel. *B* is simply a fork of any convenient size that is fastened, as in Fig. 2, at the left end of the frame just past the belt shifter to hold the rods in position when the lower ends are placed in the cup *C* which is screwed to the floor just inside of the leg of the frame. The cup is about four inches in diameter, inside, but could easily be smaller or larger.

Three of the rods *D* are required. They are 7/16-inch cold rolled steel, and just long enough to project about one-inch past the standards at each end. The standards are screwed into the floor by boring a hole slightly smaller than the pipe in the floor and then screwing the pipe into the hole. They are placed between the second and third rows of cans, as shown in Fig. 2 and 3.

The frame is creeled as usual, all of the ends of the previous creel are run through and the frame cleaned up while there is no stock in it. The new creel is placed in position, the ends run through and

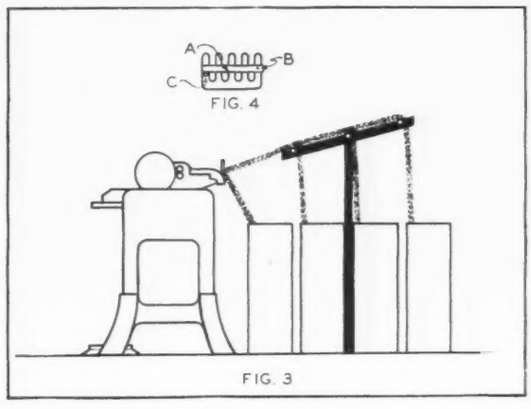


FIG. 4

FIG. 3

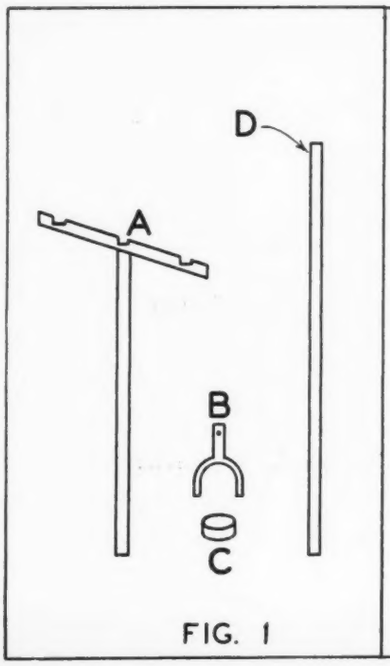


FIG. 1

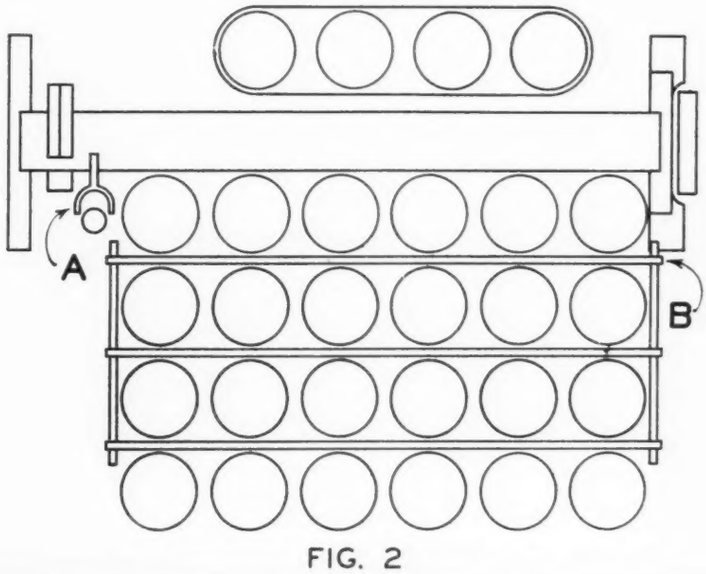
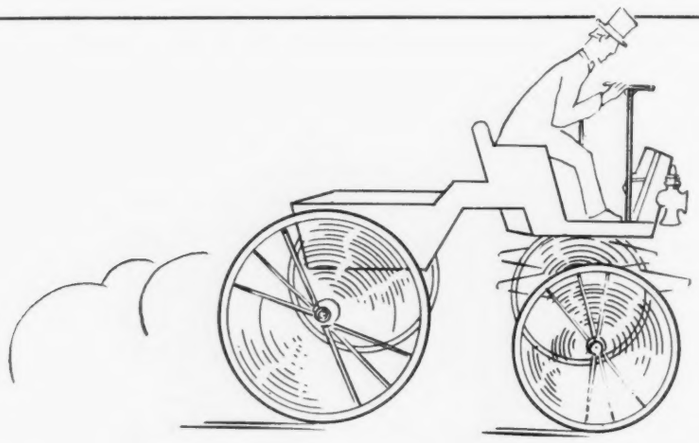


FIG. 2



This Is Another Day

It is easy to recall those days not long past when textile manufacturers could depend on volume production alone for satisfactory profits—but today things have changed considerably.

With production off, with competition a nightmare, with prices down, production costs must be reduced accordingly—and immediately.

To put it on yourself to inaugurate a reduction in operating costs presents a difficult problem: A careful study must be made of all present methods in order to find out where cuts can be made. The question is—"How can it be done to obtain definite results and still keep my employees satisfied?"

It is the business of the Charles E. Bedaux Company to lower operating costs—in a way that will please you and your employees by its effectiveness. No alterations. No reduced wages.

The Bedaux Principle of Labor Measurement is used and endorsed by many of the country's leading textile mills because it produces definite results that are greatly beneficial to both management and labor. This system during the last twelve years has saved over $54,000,000 in manufacturing costs. It has increased wages paid to labor over $32,000,000.

The Bedaux Principle is a scientific principle, applicable to any mill, with predetermined results. It functions. The sum you invest is exceedingly small in proportion to what it nets you in lowered operating costs.

Write for the highly informative booklet, "BEDAUX MEASURES LABOR." It is free for the asking.

THE CHAS. E. BEDAUX COMPANY

OF NEW YORK, INC.

DOUGLAS S. KEOGH, President
J. J. SKELLY, General Manager
22 East 40th Street
New York City

H. B. CRAFT, Vice President
in charge of Southern Operations
30 Camden Road, Atlanta, Ga.

THE BEDAUX PRINCIPLE DEALS WITH THE HUMAN ELEMENT ALONE

pieced up; then one of the rods is run under the ends from the back row of cans and placed on the rack; then the second and third rods are placed in the rack likewise, causing the ends from each row of cans to pass over the rod immediately over it and also over the rods in front of it. The front row of ends pass directly to the machine and do not go over any of the rods.

It was found necessary to place a cross bar on the guides or fingers behind the spoons on the frame as in Fig. 4. The bar *A* is a piece of flat iron of suitable size pivoted at *B* and resting on a pin at *C*. This eliminates any tendency to pull up off of the spoons and cause the frame to stop.

These attachments have almost entirely eliminated stoppage of the machine from tangled drawing, it being nothing uncommon for one of them to run out a full creel without stopping except for doffing. Also they allow the cans to be run fuller at the cards. Aside from all of this, and still more important, it has been found that the disadvantages of creeling all at once, in having a variation in the weight of the drawing from a full creel to a nearly empty one, have been almost completely overcome. It has been found that the tension on the drawing passing over the rods is, to all practical purposes, the same as that put on it in passing over the edge of the can after it has been run down below the top.

It is important that the rods be removed as soon as the drawing has run down inside of the cans. If not, all the benefits, or the most important ones, will be lost.

The addition of these rods or racks should make any drawing run better and improve the quality of the work, especially if the frames are creeled all at one time.

CONTRIBUTOR NO. 6086.

More On Mill Motor Maintenance.

EDITOR COTTON:

As we seldom have motor trouble in our plant, I thought our methods might be of some benefit to some others. I have read with interest the article of "CONTRIBUTOR NO. 5098," in the May number of COTTON. I think he covers the subject well for small motors, but our motors are mostly 50 and 75 horse power, and we have a method, so far as I know, all our own.

The thing to do is to prevent the drying and cracking of the insulation of the motors. To be able to prevent it we must have some idea of what causes it to dry and crack. One of the causes is the changes from dampness to dryness. We all know that the absorbing of moisture and then drying out bone dry will finally cause the deterioration of most any kind of material. Now a motor is going to dry out when it is running, so one of the things to do is keep the dampness out when it is standing still. The dust and lint that get into a motor will absorb moisture and help to hold it to the insulation. That being the case we must keep the motors clean. "CONTRIBUTOR NO. 5098" also stresses that point. Every time the dust

THE MODERN WAY
TO A SUPERIOR BLEACH

The **Becco** process has made rapid strides in the past few year . . . strides so great as to necessitate tank car transportation. Why? Because **Becco** is the **modern** way to a whiter, more permanent bleach . . . with a softer feel to the goods . . . and a bottom ready for **any** finish. You do well to see **Becco** concentrated peroxide demonstrated in your plant on a practical run. No obligation, of course.

BUFFALO ELECTRO-CHEMICAL CO.
BUFFALO, NEW YORK
BOSTON NEW YORK PHILADELPHIA CHICAGO CHARLOTTE
TORONTO MONTREAL

Spinna Calf is better than any other material for front rolls, due to special tanning and finishing methods used. Spinna Calf stands more abuse. Try a sample, test it on your rolls.

A. C. LAWRENCE LEATHER CO.
204 WEST McBEE AVE. GREENVILLE, S. C.
SAWYER STREET PEABODY, MASS.

becomes damp, and then dries out again it will stick so much harder, and is there, ready to take on another coat of dust at the next round of dampness and drying out. The more dust that collects and sticks, the more dampness it will absorb; therefore, the greater effect it will have on the insulation.

The best policy, I think, is to get the dust out before it gets too damp. Under ordinary conditions, the motor being warm when stopped off, I do not think it will absorb moisture enough to hurt over night. But when stopped for the week end, don't wait until Sunday afternoon to clean motors. Clean them good while they are still warm and the dust dry. A much better job of cleaning will be the result.

Extremes from heat to cold cause expansion and contraction as we all know. I do not know just to what extent it affects the wiring and insulation of motors, but I believe it has some effect. Then if it does, with the motor warm when it runs, we must keep it from becoming too cold when it is stopped. We must keep it from getting too cold for two reasons; one, to prevent contraction, and another to prevent the dampness from condensing. If a motor gets cold enough for the dampness to condense; then, when you start it you do not only have damp coils, but you have water in your motor. And if a little water hits the wrong spot; you know what happens.

The insulation, however good, cannot take care of these changing conditions and remain intact indefinitely. Our job now boils down to preserving the life of the insulation.

Here is our method: we have a hood made of heavy duck, for each motor. When we stop for the week end, and after the motors are well cleaned with air, we place the hood over the motor, and place a 75-watt electric light in the motor. Monday morning, our motors are still warm and dry, and we have no trouble in starting. If we are stopped for several days we place the hood over the motors, but do not turn the light on until from twenty-four to thirty-six hours before starting up.

Our motors have been taken down only twice in four years, and they are still going good, and we have no idea when we will have to take them down again. Our motors are most all overhead, and there is a great deal of labor and risk in taking them down. Due to this fact we had to dig up something else; hence, the above method.

We do not know as yet, just to what extent this prolongs the life of the motors, but we know we have eliminated some costly motor trouble.

I also think it a good policy to study the condition of the location of motors. Some may be located in a room, or part of the room where it is more cold or damp than in other locations. That being the case they might need just a little closer attention than they would in a drier and warmer location.

As to the proper oiling, and why, "CONTRIBUTOR No. 5098" covered that thoroughly. If you have not read his article in the May issue of COTTON, then by all means, dig up your May issue and read it. And thanks to COTTON for furnishing us a medium through which to exchange ideas and methods.

JACK (TEXAS).

Machinery Inspection.

This contributor tells of the value of proper machinery inspection and maintenance.

EDITOR COTTON:

I would like to offer a few suggestions for checking machinery in the weaving and spinning departments. These suggestions will be based upon the assumption that the machines are in fairly good shape. If the machines are not in A-1 condition, they should be overhauled as rapidly as conditions will allow.

Over a period of several years I became thoroughly convinced that the mechanical condition of the weave room is extremely important—much more so than the majority of men realize.

I have found it good practice when warps run out to tighten all nuts, inspect the warp stop motion, and have a general check-up made of the loom. A report of the condition of the loom should be made and placed on a board that may be seen by the head loom fixer, second hand, overseer or superintendent. Such a procedure as this will save a tremendous amount of time, due to the fact that breakages, repairs, etc., will be at a minimum while the warp is in the loom. Adopting such a practice also minimizes the percentage of seconds, and is really the only proper way to run a weave room.

Loom fixers have a very important job and they should be so thoroughly trained that they realize the extreme importance of the proper and delicate adjustments that should be given a loom.

There are several important items that should be carefully attended to when a new shuttle is put in. These are: the putting in of new parallel blocks; the placing on of new pickers; the race plate and boxes should be checked with a straight-edge; the picker sticks should be inspected; a standard method should be adopted for adjusting the boxes and check straps. To do all of these things correctly, it usually takes from one to three hours, depending upon the condition of the loom. It is often the tendency of loom fixers to rush through such jobs. However, when they fail to do this work as it should be done, they are only getting themselves in trouble and losing money for the mill.

There should be a board conveniently located in each weave room with the number of each loom on it, and whenever a new shuttle is placed in a loom it should be properly noted on the board. The second hand or overseer should check each loom within a day or two after the new shuttle has been put in.

The inspections made in the spinning room are quite different from those made in the weave room. They must be followed on a time basis, each section man taking one frame per day and checking the frame according to the following form:

Item.	O.K.	Not O.K.	Corrected.
Drive	√		
Cylinders	√		
Cylinder bearings		noisy	√
Builder	√		

Other items that should be included on this report for inspection are: weights, etc.; head-end gears;

twist gear; draft gears; rings; travelers; spindles; spindles oiled; separators; cap bars; lever screws; saddles; steel rolls; top rolls; trumpet guides; creels; and skewers. Each frame should be inspected for these things at least every 60 days.

I believe it will be found that the majority of the better run mills are giving machinery inspection and maintenance considerable thought, and they are being fully repaid with better quality production, lower supply costs, better running work, and better satisfied help.

CONTRIBUTOR NO. 5053.

Re-Working The Supply Room.

EDITOR COTTON:

While going through the supply room of a well-known mill recently, several things attracted my attention, which, if changed a bit, would result in a much neater workshop, besides producing a saving which is something that all mills are desperately striving for at this particular time. Only the faults will be noted here, together with a few suggestions as to how they might be eliminated.

The latch on the door was scarred by the frequent use of a screwdriver, these scars probably having been made by the section men who could find neither the supply clerk nor his assistant. The section men needed no requisition in order to obtain their supplies, so they went for supplies at night.

Several different parts were kept in some of the bins, and sometimes, more than one price was on a card. Since the bins were not indexed, only the clerk could find a gear or loom part without considerable difficulty. No records were kept of spare parts on hand, neither did anyone know each month the value of the supplies issued to each section. Lack of records prevented anyone's knowing the average lives of shuttles, check straps, pickers, etc.

A couple of the bins were full of good shuttles that had been replaced when changing kinds of filling; many of these had been robbed of eyes and springs. Facilities for disposing of worn or broken parts were not available. Several boards of special yarn were stacked about with no protection. Oil from a drum had run over a large place on the floor.

The remedy for some of these conditions is self-evident, but I should like to comment on some of them.

In order to keep everything in good condition, and to prevent indiscriminate use of the supplies, it is essential that someone be kept in the supply room at all times. Otherwise, it will be impossible to have an accurate record of the parts used. This, however, will be of little assistance unless the section hands are required to get a requisition from the overseer or the second hand for their supplies. Such an action would prevent the occurrence of an incident similar to the one recounted to me by a supply clerk at this plant who remarked that one man had broken three stands before getting one to stay put. With the proper system, the second hand would have investigated this case before issuing a second order, and would have saved the cost of the new pieces or the expense of welding

A
Real Step
Forward in the Art
of Rayon Weaving!
Rayon threads are much more susceptible to jagging, chaffing, and reed marks than cotton and silk threads. Because of this peculiarity the flat reed wire has a serious disadvantage.
As the warp thread enters and leaves the reed at a very slight angle, the pressure of the thread comes in contact with approximately 98% of the flat wire surfaces.
Accordingly, Steel Heddle Engineers set about developing a rayon reed that would eliminate this disadvantage. The result of their efforts is the
OVAL REED WIRE
The advantages of this construction can easily be seen in the sketch.
The point of pressure is taken away from the edge and is concentrated at a small point in the center of the face of the wire, due to the wire being oval. The thread is in contact with only approximately 50% of the oval wire surface.
Made in both Pitch Band and Soldered types.
Steel Heddle Mfg. Co.
MAGNIFIED CROSS-SECTION OF FLAT REED WIRE
LARGE OR ENTIRE SURFACE OF CONTACT
THREAD IS IN CONTACT WITH APPROXIMATELY 98% OF WIRE SURFACE
MAGNIFIED CROSS SECTION OF NEW OVAL REED WIRE
EXTREMELY NARROW POINT OF CONTACT
THREAD IS IN CONTACT WITH ONLY APPROXIMATELY 50% OF WIRE SURFACE
MAIN OFFICE AND PLANT
2100 W. ALLEGHENY AVE.
PHILADELPHIA, PA.
SOUTHERN PLANT
STEEL HEDDLE BUILDING
621 E. McBEE AVE.
GREENVILLE, S. C.
NEW ENGLAND OFFICE
44 FRANKLIN ST., PROVIDENCE, R. I.
FOREIGN OFFICES
HUDDERSFIELD, ENG.
SHANGHAI, CHINA

the broken ones.

For an interesting article pertaining to perpetual inventories and other similar records for a supply department, I would refer the reader to the one written by James W. Swiney in the February, 1931, issue of COTTON. Very often it will not be advisable to install such an elaborate system as that described in Mr. Swiney's article, but a modification of it would be of great value to any mill. Experience has proven that unless an accurate check be kept of the supplies issued to each section, the men are likely to become negligent and will discard parts that could be used longer or that could have had their life prolonged by being reworked.

The replaced shuttles to which I referred in a foregoing paragraph certainly should have been worked in on other sections after the change of filling, thereby preventing their being robbed of springs and eyes, and keeping the bins open for other supplies.

Special yarns should be run when possible. If this cannot be done, they should be kept from the abuse of handling by labeling them properly and placing them in bins provided with covers and locks.

The matter of keeping oil and grease off of the floor is a simple one, if one will use sawdust or some similar material beneath the drums and will exercise care in the disposal of the oil and grease. An oily floor, either in the mill or in the supply room, may be regarded as a potential accident.

The writer invites criticism of these comments, and hopes that through the discussions all of us will derive some benefit.

CONTRIBUTOR NO. 6063.

Another Opinion on Cockled Yarn.

EDITOR COTTON:

After carefully reading, on page 89 of the April issue, "WASH'S" opinion on cockled yarn, I would like to give my ideas as to what actually takes place when cockled yarn is made on a spinning frame, and why the little soft lump, without twist, will strike out when the least bit of tension is applied to the thread.

The real cause of cockled yarn, of course, is long and short staple cotton being run together, and the rolls being set for short staple cotton; when the long fibers have not been released by the middle rolls, and until they are released they will pass through the front rolls at the same speed that the cotton is passing through the middle rolls. So you see the long fibers slip between the front rolls during the time they are between both the front and middle rolls, and during this time the short fibers are being taken from the middle rolls by the front rolls at the regular speed of the front rolls, and are being passed to the thread; but the thread is almost stopped moving toward the bobbin, as it is moving just as fast as the middle rolls are moving. So you see the short fibers cannot move away from the front rolls any faster than the thread is moving, so they just pile up in front of the front rolls and wrap loosely around the thread, which is momentarily being made of just the long fibers. The twist will always go to the smallest place or where the fewest fibers are, and this is why the little soft lump is without twist; the reason it strikes out so easily when the tension is applied is because the long fibers are twisted so hard and there are so few fibers that constitute the thread at this point, that the long fibers just break and let the soft lump stretch out, but the fibers that the lump consists of have no tensile strength because they are without twist, or nearly so.

I do not think that the top front roll is momentarily checked by the long fibers, as there is nothing to move the short fibers forward any faster than the middle roll delivers the roving, and the long fibers are moving forward as fast as the middle rolls allow; so you see if the front roll was checked there would be just a soft lump that would not strike out but would break without stretching out first.

The best way I know of to overcome cockled yarn is to take weight off of the middle top roll and allow the long fibers to slip between the middle rolls as fast as the short fibers are being drawn from the middle rolls by the front rolls.

If one will take a piece of sewing thread and start one end of it through the roving guide or trumpet, and hold the other end, and let it feed through the rolls at the same speed of the roving, he will see when the thread reaches the front rolls that the soft lump is formed in front of the front rolls and that the short fibers are curled loosely around the thread and will continue to cockle in this way until the thread is twisted so hard that it breaks.

CONTRIBUTOR NO. 6078.

More Discussion on Why Roll Leather Splits.

EDITOR COTTON:

In the report of the carding and spinning discussion held at the semi-annual meeting of the Textile Operating Executives of Georgia as published in the April issue of COTTON, one item, namely, "What causes the outside or hair side of sheepskin rolls to come loose from the meat side, sometimes after running a short time?"—attracted the writer's attention.

The opinion of one man tended toward the idea that oil getting on the roll and working into the leather has something to do with it, and of course, I agree that leather is of a spongy nature and absorbs any moisture quickly and in time will dry out, but I fail to see where this will tend to split the leather surface.

Another member blamed the excessive liming in the treatment of the leather, and in the de-hairing process. In this case, the packers, so our friend claimed, were to blame, and not the tanner. The writer claims that both of these two individuals are blameless. A roll coverer claimed that the native leather is okeh, but New Zealand leather will cause a lot of this splitting. That man must believe that home products are best, even to sheepskins. Maybe our friend would not care to repeat that statement if he knew that thin skins do not grow on healthy sheep, and also when a skin from a healthy sheep is thinned by a shaving process the whole fibrous structure suffers in strength. Of course, he may not think that our sheep are very healthy. Of course a lamb skin

is different, in that the fibrous structure is very fine, thin and delicate.

That is where many of us fail, in that we do not select for our rolls the right kind of skins for the various processes. The writer knows of slubber rolls covered with the same weight and grade of leather as that used for fine frames. Well, maybe the roll coverers think we do not know the difference, and in some cases they are right.

I notice one more gentleman, who was nearer the mark, said that too much pressure will cause the skin to separate. However, in the writer's opinion, they are all on the wrong track; that is, if the writer is on the right one, in forming an idea as to the definition of this leather splitting.

Anyhow, in endeavoring to define this opinion, in the first place, the writer chooses to blame roll coverers, for imperfect calendering or smooth surfacing. Some of our friends will probably know that after the ending operation in roll covering there follows another important process, namely, calendering, which, suffice to say, is indispensable, and for numerous reasons the rolls after having been calendered are greatly improved in many ways. Our friends will agree that the roll skin passes through many stages and they will easily recognize that the leather receives a considerable amount of rough handling even in the hands of the most careful.

One instance points to the process of making the piecing. The cementing of the joint makes a hard line, as wide as the joint itself from end to end of the cot, and with this a certain amount of flatness, which of course, is apparent, though not extremely so, on the roll surface after the pulling or drawing-on process.

However, the aforementioned leads us away from the point, though of course, it serves as an introduction to the final solution of the problem.

Now, in drawing-on, or mounting the cot, it must be clearly understood that it is absolutely necessary to pull the leather on the roll as tightly as possible, and, mind you, although the gauge of the length may be correctly adjusted to allow for stretching without damaging the skin surface, the variation in the nature of the leather will cause many cots to receive a certain amount of damage through too much stretching. Please notice the last phrase, "too much stretching." Why? Well, if you have ever had the opportunity of examining roll leather through a microscope you have probably viewed the surface as having possessed what is called a "veined" nature, which can be described as looking like veins standing out quite distinctly from the porous tissue which you know leather possesses. These veins vary in size, according to the quality or grade of the leather.

Now to the real point in the discussion. In the process of pulling on the cot, when too much pressure or tension is exerted upon the leather, this "veined" surface bursts open and we encounter a series of scales—a scaly surface.

To the naked eye these scales are invisible, but to the sense of touch they are perceptible, and the presence of such a surface will be easily detected by the work, sliver, etc., in process, because roll licking will

Savings You Can Make *NOW*

RIGHT NOW... the Morehead Back-to-Boiler System will effect substantial savings for you . . . just as it is doing for Morehead users whose steam drainage problem is identical with yours.

In textile mills where today's conditions are being met successfully, the Morehead System is efficiently draining slashers, carbonizers, dryers and other steam-heated equipment . . . speeding up production, improving product quality and sharply reducing costs.

The detailed facts are impressive, and the coupon below will bring them to you at once, without obligation. If you are interested in plugging the leaks that cheat you of profits—mail it today.

MOREHEAD MANUFACTURING COMPANY
DEPARTMENT C - - - DETROIT, MICHIGAN

Morehead
Back to Boiler
SYSTEM

COUPON

Morehead Mfg. Co.,
Department C,
Detroit, Michigan.

I'd like to know the experiences of Morehead users, and to find out what Morehead methods can save me.

Name_____

Firm_____

Address_____ City _____

(511)

predominate, and many practically newly covered rolls are taken out on account of this defect alone.

The remedy, of course, to my mind, is perfect calendering, by which rolls are rolled between hot surface plates, leaving rolls 100 per cent smooth, minus hard joints, scaly surfaces and bad ends. The writer has found new rolls in the aforementioned bad condition of licking and traced the trouble to bad or no calendering.

However, the foregoing is what I visualize as what our friends meant by roll leather splitting, as I fail to conceive any other reason for the condition. Of course, if they split at the piecings, then I would denounce the coverer for piecing unequal bevels, but as I understand the problem, the splitting is on the surface.

E. D. (R. I.)

Reducing Seconds

Some records for the overseer to use in trying to hold this item to a minimum.

EDITOR COTTON:

I am sending you two forms which have been of great aid to us in keeping down our seconds.

The large form, namely, "Seconds Report," which we will call Fig. 1, is filled out by the overseer after the goods have been graded as seconds. He writes down the name of the weaver and the cause of the seconds under the proper column on the same line with the weaver's name. This report is then placed in the weave room where all of the weavers may see it for each week.

The small report, Fig. 2, is made out by the folder man, who inspects all of our goods and is the first man to notice any defects after the goods leave the loom. He immediately fills out this report by merely checking the defects named on the report and puts it on file in the cloth room. The overseer of weaving watches this file throughout the day and as soon as he sees a ticket on this file he takes it to the weave room and checks the loom that the seconds were made on. He is thus able to find out whether the loom is still making seconds or has been repaired.

I hope that the reader will not allow the simplicity of this system to detract in his opinion from the value of it, for we have found it to be of far greater help than we originally hoped.

CONTRIBUTOR No. 4682.

Date .....

Seconds Report

Loom No. .....

Bad Selvage .....

Bad Burr .....

Thin Places .....

Bad Reed .....

Uneven Cloth .....

Drop Thread .....

Misdraw .....

This defect in Loom was fixed

by .....

Date .....

This ticket must be signed and returned to cloth room.

FIG. 2

SECONDS REPORT

Week Ending _____ 19___

Sheet No. _____

NAME	Loom No	M.	T.	W.	T.	F.	S.	No. Cuts	Hard Sizing	Bad Selvage	Bad Burr	Thin Places	Bad Reed	Drop Thread	Miss Draw	Loom Oil	Size Spots	Scratch Ups	Ends Out	Bad Handling

FIG. 1

A Discussion of Fly Frame Cones.

A very timely discussion. Read it and let us have your opinion.

EDITOR COTTON:

Of the several questions asked by our friend "T. R. (N. C.)" in a recent issue, the one concerning the cones of a fly frame was of the most interest to me. He asked why the cones are convex and concave.

The cones of a fly frame have not always been built convex and concave as they are today. Before curved cones were brought into use, the let-off racks were unequally divided to control the movements of the cone belt so that it allowed the distance moved by the belt along the cones to be comparatively greater at the start of the set than at the finish. The cones used in conjunction with these racks were straight and uniform in construction.

It is easy to see that in building a bobbin the addition of a layer of roving at the start of a set has a much greater effect proportionately than it does on a set nearly full. Therefore, we can see why the winding on speed (excess speed) of the bobbin, which is controlled by the equal movements of the cone belt, must be varied more at the start of a doff than when nearly full. The winding on speed must decrease proportionately as the size of the bobbin increases with each layer of roving added. A curve plotted to this proportion would diminish the winding on speed reciprocal with the increasing diameter of the bobbin.

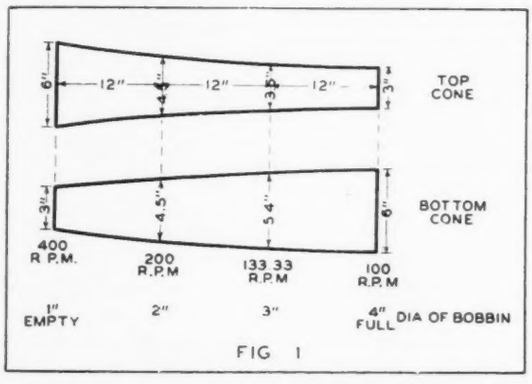


FIG 1

By referring to Fig. 1, the varying speeds of the bottom cone for the different bobbin diameters may be seen. It will be noticed that when the bobbin has increased to 2 inches in diameter, or ⅓ of its total increase, the speed of the bottom cone has diminished ½ at this point, and the top and bottom cone diameters are equal. If cones that were uniform in construction were used, then the equal diameters would come in the center, which discards straight cones.

The following rules are used to figure cone speeds:

To find r.p.m. of the bottom cone at any point:

$$\frac{\text{r.p.m. of bottom cone at start} \times \text{dia. of empty bobbins}}{\text{dia. of bobbin at any point.}}$$

To find the top cone diameter, it is only necessary to divide the sum of the diameters multiplied by the bottom cone speed by the sum of the cone speeds.

The sum of the diameters minus the top cone diameter equals the bottom cone diameter.

CONTRIBUTOR No. 5011.

Stop Wasting Money on *Cheap* Lubricants!

For over 35 years a steadily increasing majority of all the leading textile mills have continued to use NON-FLUID OIL. Their own tests have repeatedly proven NON-FLUID OIL to be the most ***economical lubricant*** in terms of performance.

Made to stay in bearings and lubricate dependably until entirely used up—NON-FLUID OIL does not drip, leak or spatter like liquid oils. It outlasts them 3 to 5 times, saving money on lubricant and labor cost.

Then too, it practically eliminates oil stains on goods by remaining where applied. In this way it often saves more than the entire annual bill for lubricants—the first three months it is in use.

Write today for free testing sample and bulletin, "Lubrication of Textile Machinery."

New York & New Jersey Lubricant Co.
Main Office: 292 Madison Ave., New York, N. Y.
Lewis W. Thomason, Charlotte, N. C.
Southern Agent

Warehouses:

Chicago, Ill.	Providence, R. I.	Atlanta, Ga.
St. Louis, Mo.	Detroit, Mich.	Charlotte, N. C.
New Orleans, La.	Spartanburg, S. C.	Greenville, S. C.

TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

"Learning the Mill Game"

Methods of Overhauling Spinning Frames.

From a Beginner Who Is Trying to Follow Some of the Instructions Received from Old-Timer.

EDITOR COTTON:

My first job after finishing textile school was that of "front man" with the overhaulers in the spinning room. I had never given much thought as to how important overhauling really is until I was placed on this kind of work. But I understand now the importance of having spindles plumbed perfectly, and frames cleaned and lined so that every part works as freely as possible, and especially the importance of not leaving any loose steel roller joints.

We use the following method of overhauling spinning frames:

First, our "front men," consisting of two cleaners and the overhauling foreman, take down and clean one frame ahead of the spindle plumbers. These men take down the gear end, lift out all leather and steel rolls, and clean and polish steel rolls, stands, etc.; also inspect steel rolls for loose joints. If they find any loose joints they take them out, making certain to mark the joint coming out and the one it fits into, so the roll will be placed back correctly after having been renecked at our machine shop. Then the frame is cleaned and made ready for the plumbers.

Second, the frame is leveled and lined, both crosswise and lengthwise. This is a very necessary step as the frame has to be lined well before all gears and steel rolls will turn freely. We place the level crosswise of the frame, first at the gear end, and start getting the frame level by either raising or lowering the frame by the adjustable legs. (If frames do not have this type of legs it is necessary to pack cardboard or pieces of wood under the feet of the frame.) Next we take a line and run it from the head of the frame to the foot or motor end; then place a line level, which can be hooked on the line at the middle of the frame, and see if the frame is level lengthwise. If the frame is not level, then, if possible, we lower the high end of the frame to get it lined up; if not possible to lower the high end, it is necessary to raise the low end. After we get the frame level lengthwise, we take the cross-level again and check from one end to the other.

It is essential to have all lag screws screwed down well at both ends of the frame.

Next comes leveling the ring rail. We place a small level crosswise on the ring rail at each lifting rod. If the rail is not level at any one rod we lift the ring rail off the rod and file the rod on the high side until the rail sits level. We do this at every lifting rod. Next, we take a rail gauge and start at the gear end of the frame on the traverse side, and see that all joints are level, going all the way around the frame placing the gauge at each lifting rod.

Fourth, all nuts on rocker steps and traverse rods should be tightened before the plumbers start plumbing the spindles. The reason for this is that if spindles are plumbed with some of these nuts loose, and they are then tightened, it will nine times out of ten throw all of the plumbing work off.

Fifth, our method of plumbing spindles is as follows: We start with the ring rail at the bottom and knock all the spindles in. Then run the rail to the top of the spindle and pack with shims on close side of plumbers' plug until all the spindles come to center. Then run rail back down to the bottom and check the spindles again at this position. If they are still out of plumb, we pack the shims on the wide side. We again take the rail back to the top position and check for the last time. If there are any of the spindles still off center we pack them with shims.

Last, but not least, the frame is ready for the inspector. This inspection is very important, because if the inspector is not very strict, the plumbers will have a tendency to rush their work and as a result the spindles will not be plumbed correctly.

The overseer is the inspector in our mill, and he checks every spindle at both top and bottom. He does not allow the spindle to be out a fraction of an inch at the top, and he uses his own judgment, at the bottom, as to whether the spindle will take another shim. He also inspects the leveling, cleaning, etc.

After I had been with the overhaulers until I thought I knew all there was to know about spinning frames, I began to wish for a chance to run a section. (Just another young "know-it-all".) Then one day the overseer told me that one of the section men was leaving, and that he was going to give me a chance at the job.

A few days later I made my debut as a section man. I walked around over the section looking after my flags, broke-backs, or whatever you care to call them. I would cut off cotton laps when that was necessary, and then when I couldn't find any special cause for a flag I would put in a new leather roll and consider the flag taken care of. Finally, in about two weeks, my job began to run badly, and I had so many flags I could hardly take care of them. One day at stopping time, after I had been going around my job like a merry-go-round all day, and it looked like the other section men had been standing around talking most of the time, I decided that there was something wrong with me and not my job, so I concluded that I was not so smart after all.

Early the next morning I got into conversation with the section man on the adjoining section. He was an old-timer in the game, so I began to talk to him about how well his job was running, and said I would like for him to teach me his way of running a section. This made him feel fine, and consequently he spent most of his time that day on my job, teaching me that a flag meant more than just putting in a new roll.

After that I went to work trying to get my section out of the hole again, and in A-1 shape. I was well on my way to accomplishing this when one day the overseer came to me and said the superintendent wished to see me in his office at once.

I "knew" right then that I was going to be promoted to overseer of spinning. I walked into the superintendent's office with my chest stuck out, and feeling like a million dollars, but it didn't take the superintendent long to let the wind out of me as far as becoming overseer of spinning was concerned.

He did make me feel pretty good, though, because he told me that he needed a night second-hand in the card room. He also told me that the production was low and that it had to be built up so that the card room could keep up with the spinning. So, as I understood him, I was being placed on this job to see if I could build up the production. I immediately accepted the nomination.

When I left his office I was in the best of spirits until I was about half way home; then I happened to think of my wife, and how I was going to break the news to her about the night work end of it. You see, I had only been married about six months. But again my worries were groundless, because it didn't even bother her when she learned I had to work at night. That's the kind of wife to have. She said she was proud of me and wished me luck with my new work.

(To be continued.)

"YOUNG TIMER."

Card Grinding and Settings.

Another man's ideas on this important item of operation. What are yours?

EDITOR COTTON:

An article on card grinding which appeared in a recent issue, written by "C. R. D. (N. C.)," was just the stimulus I needed, so here I come with some remarks along the same line.

I think the first thing to do in setting cards is to strip the cards out with rollers in order to remove all seeds and foreign material. Then, after allowing the card to run until the flats become clean, the drive belt should be thrown off and all fly and motes cleaned from around the arches and under the card. With the card now at a standstill, the cylinder should be turned all the way around with the hands to see if there are any bruised places on it. If so, these should be scraped up. If these places are rather bad the clothing should be taken off and the places rubbed out. However, if the wire is bent very bad, new clothing is probably the only remedy.

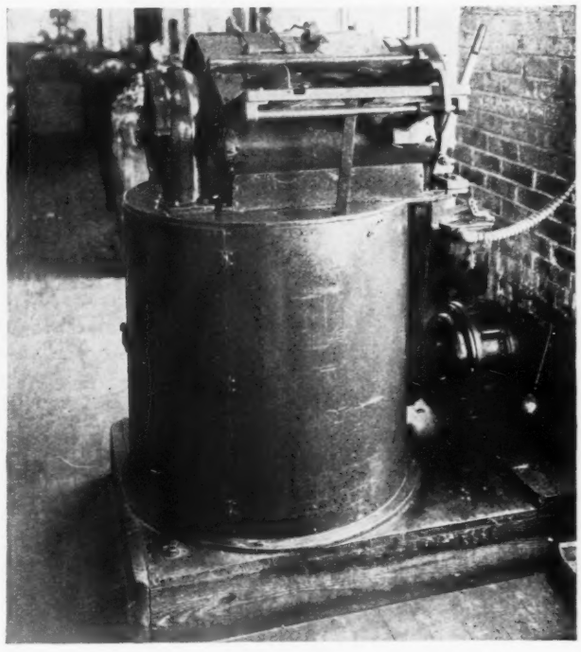
Next the grinder rolls should be placed on the card and grinding commenced. The roller should be set to the cylinder so that an even spark is obtained all the way across. After grinding the cylinder the roller should be set to the doffer a little lighter, but very little lighter. Grinding should be heavy enough to obtain a good point, but great care should be taken not to grind too heavily, as card clothing is very easily ruined.

I have found the following settings to give very good results on 1⅛-inch cotton: flats, 7/1000; doffer, 7/1000; licker-in, 7/1000; feed plate, 10/1000; mote knives, 5/1000; back plate, 17/1000 at bottom and 22/1000 at top; front plate, 22/1000 at top and 34/1000 at bottom; doffer comb, 17/1000; screen at back, 17/1000, at bottom, 34/1000, at front, 3/16-inch; and licker-in screen to licker-in, 10/1000.

I believe anyone trying the settings given in the preceding paragraph will find that they will give good results. If anyone disagrees with me, I would like to hear from them.

CONTRIBUTOR NO. 4819.

DOES A SAVING OF $770.00 INTEREST YOU?



Illustrated above is an unretouched photograph of the Termaco Roving Bobbin Cleaner installed at the Bradley Manufacturing Company, Columbus, Ga.

The machine used by this mill—before they installed a Termaco—required the attention of TWO OPERATORS. Now, the mill reports that they save $770 every fifty weeks; also that the Termaco reworks their roving waste, saves their bobbins, and keeps colored waste separated.

DOES A SAVING OF $770.00 INTEREST YOU?

Then Why Not Buy a Termaco?

In these strenuous times, competition is keen. If you want to find out how you can reduce your operating costs, write today for a copy of "Termaco Facts"—a loose-leaf book that gives unbiased reports on Termaco machines now in operation. "Termaco Facts" is free to mill executives only.

THE TERRELL MACHINE CO·INC
CHARLOTTE·N·C·

General Supply Co., Danielson, Conn., representative for N. Y., N. J., Pa., New England States and Canada. Geo. Thomas & Co., Ltd., Manchester, England Agents for Great Britain and Continental Europe.

Cockled Yarn Can Come from the Cotton.

Some interesting practical comments on how uneven cotton is and why—and the spinning difficulties presented by this condition.

EDITOR COTTON:

I notice a letter from "CONTRIBUTOR NO. 4990" in a recent issue of COTTON, in which he asks for some information as to what happens on the spinning frame when cockled yarn is being made. Perhaps some of your readers may have made some studies of this with a stroboscope, and having thus actually seen the yarn being cockled as it passed through the rolls, may be able to tell exactly what appeared to happen. However, in the absence of any eye witnesses, the following information may throw some light on the subject.

Cockled yarn being caused by the rolls being set too close to permit free slippage of the fibers over each other, a wider setting of the rolls would always remove this trouble, provided that the staple of the cotton was uniform. This, however, is never the case. So-called inch cotton will seldom contain as much as 20 per cent of inch cotton. A typical distribution of fiber lengths for inch cotton would be about as follows.

1-inch, 16 per cent

1 1/16-inch, 16 per cent	15/16-inch, 16 per cent
1 1/8 -inch, 10 per cent	7/8 -inch, 6 per cent
1 3/16-inch, 5 per cent	13/16-inch, 5 per cent
1 1/4 to	3/4 -inch, 5 per cent
1 1/2 -inch, 11 per cent	11/16 to
	1/4 -inch, 10 per cent

This is a rather favorable distribution, as shown by fibers pulled from the seed by hand, and representing the actual length of the staple. Good, fair, or poor ginning conditions will vary these averages very much. Poorly ginned cotton will show a much higher relative quantity of short fibers and long fibers as well, because there will be a much lower percentage of staple falling within the 1 1/16-inch to 15/16-inch class. A poorly ginned sample of the cotton I have analyzed might easily show only 30 per cent of the stock falling within this range, instead of the 48 per cent indicated by the study on hand pulled staple.

Now, cotton which contains 50 per cent of its fibers falling within 1/16-inch of nominal length will draft more uniformly than cotton with only 30 per cent of fibers coming within these limits. It will be necessary to set the rolls only 1/16-inch more than nominal staple length to pass about 75 per cent of the fibers freely in the first case, and only 65 per cent in the second. A roll setting of 1 1/8-inch will include 85 per cent of the fibers in the first case, and about 77 per cent to 80 per cent in the second, so that there will be about 33 to 50 per cent more long fibers that will be gripped by both rolls in the second case than in the first.

Naturally, if a very high percentage of fibers are able to pass freely through the rolls under draft, the few that are too long to go through without being gripped at both ends will either go along with the bulk of the roving when the fibers are not gripped too tightly to slip, or they will break. If a small enough percentage break, they will not affect the drafting appreciably, but a high percentage of long fibers will interfere with the smooth drafting of the roving, and cause it to pass haltingly through the rolls. This cannot be relieved by spreading the rolls, because if the roll-spread is too great for the average length of staple, irregular drafting is sure to result.

Wide variations of staple in any given bale of cotton are not only caused by the natural variation of staple length in the fibers in any cotton boll, and by the adverse effect of poor ginning, but by mixed seed planted in the farmer's field. Many farmers are none too particular about the seed they use, and it is very easy to get varieties of cotton mixed at the gins. Farmer A has a good inch cotton of uniform staple. Farmer B has a good 7/8-inch cotton of uniform staple. They go to the gin together, and no matter which follows the other, unless the seed are very carefully separated out as they come from the gin, one of these farmers is going to raise some mixed stock next year.

These mixed stocks are the cause of most trouble with poor running yarns due to uneven staple. They furnish a sufficiently large percentage of long fibers to cause the rolls to slip in drafting, and from this will result the lump your contributor refers to.

An actual study with a stroborama would probably show that as long as there was a very small percentage of these extra-long fibers, the few contained in the roving simply broke, and were covered up in the yarn, or else they slipped through with the rest of the fibers without snapping. A slight increase in the number of long fibers would probably show that a good many broke in passage, and when they snapped under the strain, had a tendency to curl up, and curl other fibers with them, so that they made a cockled place in the yarn. A still further increase in the number of these long fibers would no doubt show a larger number breaking, and cockling the yarn, with an occasional mass of long stock of sufficient strength to resist the pulling effect of the draft rolls, and cause a momentary slippage. If this slippage is under the front roll, a thin place will result; if under the back roll, the bundle of long fibers will pull other fibers through the bite of the rolls, and form a small bunch.

Long-draft spinning frames will handle mixed staple very successfully. One mill made an experiment with a bale of broker's samples, containing staples from 5/8 to 1 3/4-inch mixed at random as the samples had accumulated on the broker's table. It ran with little trouble, on a long-draft frame, and made a very good yarn, although it was not as even as desirable, on account of the difficulty of making a roving out of such irregular stock.

With the slip-draft principle of the long-draft frame, the extra length fibers were not broken, and consequently there was no cockling.

CONTRIBUTOR NO. 5056.

Causes of Uneven Yarn.

This contributor says the staple of the cotton and mixing are the two most important factors in obtaining even yarns.

EDITOR COTTON:

I have often wondered just how many men have burned mid-night oil almost incessantly and turned gray a number of years before they should have trying to figure out the causes of uneven yarns. Although the subject is an old one, it still furnishes much food for thought, for I do not believe there is a mill anywhere making yarn as even as they would like to make it.

There are a thousand and one different things that will cause yarn to be uneven. The staple of the cotton not being of uniform length, and improper mixing, are two items that have a very pronounced effect on the evenness of yarns. I do not believe there is any method that will beat the old method of mixing by hand, regardless of how large or small the opening room happens to be. Of course, the larger the better. If we can open 50 bales at a time it is much better than 10 bales at a time. What I mean by hand mixing is this: get out as many bales as there is room for in the opening room, and after the bagging and ties have been removed from the bales, start with bale No. 1 and spread a lap from this bale on the floor. Next, take the same amount from bale No. 2 and spread it on top of that taken from bale No. 1. Continue this on down the line, placing bale No. 3 on No. 2, No. 4 on No. 3, etc., until similar amounts have been taken from all the bales. After this operation is completed, the same thing should be repeated until all of the cotton is off the floor.

When the man who is feeding the hoppers gets his cotton he should pull this cotton from top to bottom all down the line. This gives him as even a mixing as is possible to obtain. If the hoppers are fed by hand they should be kept about two-thirds full at all times. To allow them to be packed too full and then run empty is very bad practice.

If the hopper is fed by means of an apron or other means, the apron should not be allowed to run empty, but should be kept full all the time.

Now taking up the pickers, they must be kept well oiled and cleaned and have the correct amount of draft coming from the fan to form a good smooth even lap. The cages must be kept clean and running freely, not jumping every now and then. All gears must be in good shape and properly set so as not to have any unnecessary back-lash in them. All aprons should be kept running freely. If they have ball bearings, so much the better. The feed rolls and feed roll bearings should be kept thoroughly cleaned; also, around the inside of beater box around the ends where much dirt will collect if they are not given the proper attention. The eveners should be kept in good condition at all times.

Where four laps are run on the apron, two should be started full and two half full, which, of course, prevents them from running out at the same time. I think a half a pound variation either way is as much as should be allowed on the finisher pickers.

Cards should be kept level at all times, with no

THE
DYER'S HELPER

THE basic need in every dye bath is some power or influence which will carry the solution thru and thru the cloth with such perfect circulation the color reaches every particle of every fibre. The dyes are then true to shade, level, brilliant, appealing in their beauty. Goods so distinguished sell better, and bring higher prices. You can obtain such results by using

ESCOLLOID

COLLOIDAL ALKALI FOR SCOURING AND DYEING

When dissolved, this new substance makes a solution having physico-chemical properties entirely unlike any common alkali. Greater in penetration, more thoro in circulation thru the goods, powerful in dispersing dyestuff thru the solution, this new colloidal-alkali opens new possibilities for the Dyer who wants to produce exceptional dyeing effects

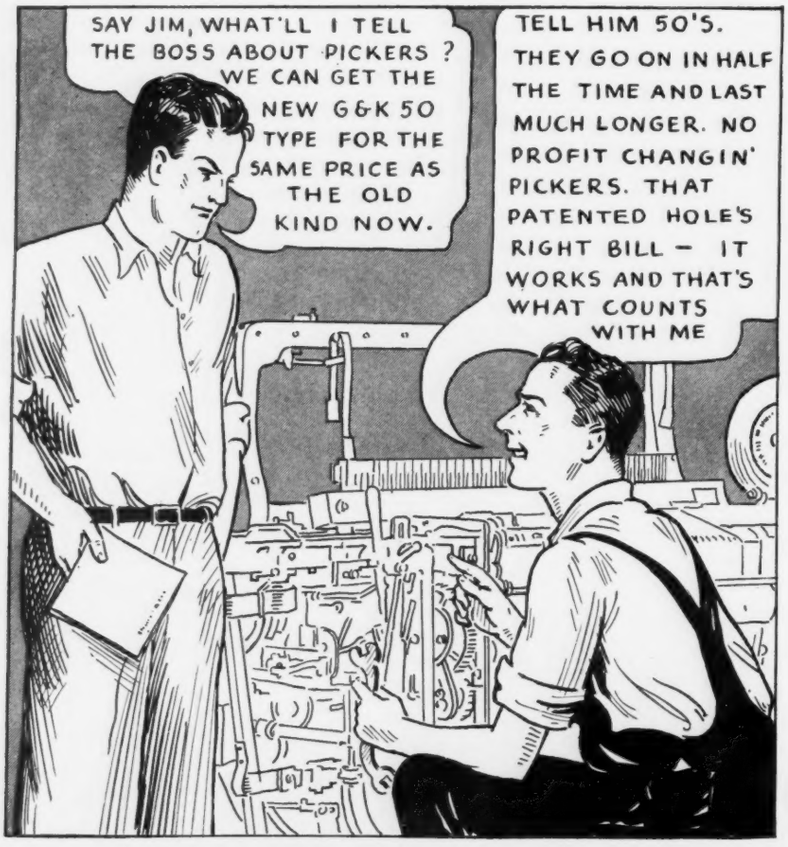
"SCIENCE HELPS THE DYER" is a new and worth while talk in type inspired by the help being given Dyers by ESCOLLOID. *May we send you a copy?*

THE COWLES DETERGENT COMPANY

7016 EUCLID AVENUE . CLEVELAND, OHIO

SOUTHERN DISTRICT OFFICE: 534 HURT BLDG., ATLANTA

OVERHEARD IN THE MILL *By Nelson*


SAY JIM, WHAT'LL I TELL THE BOSS ABOUT PICKERS ? WE CAN GET THE NEW G&K 50 TYPE FOR THE SAME PRICE AS THE OLD KIND NOW.
TELL HIM 50'S. THEY GO ON IN HALF THE TIME AND LAST MUCH LONGER. NO PROFIT CHANGIN' PICKERS. THAT PATENTED HOLE'S RIGHT BILL — IT WORKS AND THAT'S WHAT COUNTS WITH ME

Now . . .
New
50 type
picker
for price of old

G&K improved 50 type pickers are now made in three thicknesses, all accurately maintained —

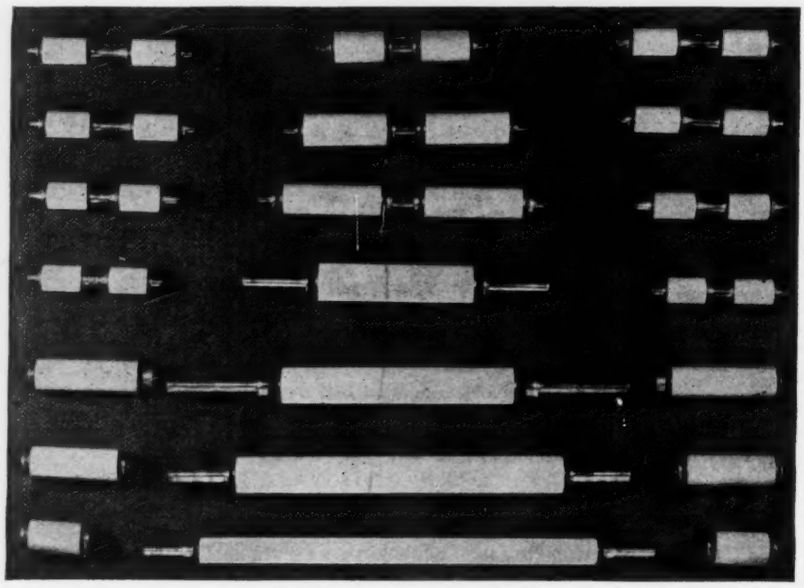
G&K 50 — 7/32″ thick at loop
G&K 55 — 3/16″ thick at loop
G&K 60 — 5/16″ thick at loop

All features retained — made from tough Research leather. Use 50 type for longer wear—lower installation cost. Priced according to thickness.

Stocks carried by Graton & Knight Distributors in all principal textile centers.

GRATON AND KNIGHT

Graton & Knight Company
WORCESTER, MASS.



Predominating!

Even felt cloths can stand out in their field, as is proven by the unanimous approval of "Philadelphia" throughout the textile industry.

Roller Cloths of the correct cushion and uniformity.

Clearer Cloths with thick strong nap that cannot pull out. Uniform length that clears rolls entirely of short fibre.

Slasher Cloths with enough cushion and porosity to thoroughly force sizing into yarn.

Philadelphia specializes in Stamping Blankets, Palmer Blankets for Sanforizing and Lapping Cloth for Printing.

Our Southern Sales Manager, Clarence B. Seal, will gladly assist you on felt cloth problems. Address inquiries to Philadelphia.

PHILADELPHIA FELT COMPANY
FRANKFORD, PHILADELPHIA, PA.

Philadelphia *Felt Cloths*
PROVEN IN SERVICE

loose clothing on them. The cards should be ground, not to sharpen them, but to keep them sharp. All good carders will check up on their cards every now and then to see that they are being ground properly, as well as to check up on the settings from time to time.

It is not good practice to use a broom or flap to clean cards, but rather a brush for wiping down the fronts of the cards, as this will prevent fly and loose lint from dropping into the sliver. All motes and fly should be kept from beneath the card. The ceiling should be kept clean to prevent lint from falling into the sliver, causing slubs in the finished sliver, and of course uneven yarn.

All gearing should be kept well set so no back-lash will make itself prevalent. It is impossible to give a set rule for card setting, but I will give here a good setting for 1-inch American cotton: doffer to cylinder, 7/1000; flats to cylinder, 9/1000; flat stripper comb, 10/1000; doffer stripper comb, 10/1000; licker-in to cylinder, 7/1000; mote knives to licker-in, 7/1000; feed plate to licker-in, 10/1000; stripping plate to cylinder, 17/1000 at top and 22/1000 at bottom; back plate to cylinder, 17/1000 at top and 20/1000 at bottom; cylinder screen to cylinder, 17/1000 at back, 32/1000 in center and ¼-inch at the front.

It should be seen that the card hands do not make either too long or too short piecings. If the piecing is long the sliver will be too heavy, while if short, it will be too light. This can not be evened up on the drawing and other processes, either, for once it gets by the pickers and cards uneven yarn will be the inevitable result.

If the cans are allowed to run too full before being doffed the sliver will be stretched and this will cause a weak uneven sliver. Care should be taken in piecing up at the front so as not to cause a hard end on the drawing, which will go through as a thin place.

One other thing about the cards. When stripping, the end should never be put up until the doffer has been allowed to fill up.

On the drawing frames it should be seen that the machines are kept well oiled and cleaned. All gears should be kept in good condition, as well as all sliver spoons and trumpets.

The drawing machine is called a "fool-proof" machine, but I think this is a very erroneous conception. I consider it to be a machine that bears close watching at all times, and one that requires the attention of a good hand. The frame should be given a general overhauling at least twice a year. This should include scrubbing of steel rolls, calender rolls, sliver spoons and coiler heads. In other words, the machine should be kept well polished.

Going next to the slubber, these machines should also be given a general overhauling every six months, which should include a thorough inspection of the steel rolls, top and bottom carriages, all couplings, and bobbin and spindle gears. If the bobbin gears are set too deep this will cause a jumping bobbin, which will cause one layer of roving to ride the other. The tensions should also be checked, also the lay gear, roving guides and trumpets. Good top leather rolls should be in the frames at all times.

THE AKRON BELTING CO. ESTABLISHED "AKRON" 1885 AKRON, OHIO, U.S.A.

This Brand
has meant First Quality
LEATHER BELTING
to two generations of
SOUTHERN TEXTILE EXECUTIVES

Your orders are solicited.
Our guarantee protects your purchase.
We Ship Quick!

The Akron Belting Company
Akron, Ohio

Direct Sales Representatives:
L. L. HASKINS, P. O. Box No. 241, Greenville, S. C.
L. F. MOORE, P. O. Box 1293, Memphis, Tenn.

SCOTT TESTERS

The New Calculator for Easy Figuring of all Yarn Numbers

½ actual size

Direct reading in yarn size from weight of 120 yard skeins. Conversion to every yarn numbering system instantly and without figuring or memorizing tables.

NO CHANCE FOR ERROR

Design based upon well known mathematical laws. Theoretically and practically correct.

Price $2.50 each. Discounts in quantities.

Sold by ALDRICH MACHINE WORKS, Greenwood, S. C.

HENRY L. SCOTT CO.
101 Blackstone Street, Providence, R. I.

SIZING FINISHING

Tragasol

REG. U.S. PAT. OFF.

Sole Agents United States and Canada—

JOHN P. MARSTON COMPANY

247 ATLANTIC AVE. BOSTON, MASS.

HERMAS

Vertical Brush

With any number or combination of wire fibre. Bristle, or sand rolls.

Has new V Belt drive, ball bearing throughout.

Brushes are instantly adjustable for heavy or light brushing, individual suction on each brush, cleans itself instantly.

Built in all widths, motor or belt drive or operated in tandem with other machines.

HERMAS MACHINE CO.

HAWTHORNE, N. J.

REPRESENTATIVES

SOUTH

CAROLINA SPECIALTY CO., CHARLOTTE, N. C.

PRACTICE ECONOMY

Save time and money by having your card screens overhauled by specialists here in the South. We carry a complete line of parts for all makes of card screens, and guarantee satisfactory work and prompt service. Write for information.

GASTONIA TEXTILE SHEET METAL WORKS

222 E. LONG ST. GASTONIA, N. C.

Manufacturers and Rebuilders of Card Screens, Spinning Cylinders and Drying Cans.

WRIGHT MACHINE COMPANY

Builders of Special Textile Machinery

Cut Gears — Generated Bevel Gears

GRANITE FALLS, N. C.

MILLER LINE Est. 1896

TYPEWRITER RIBBONS AND CARBON PAPERS

MADE TO OVERSERVE—NOT TO UNDERSELL

Manufactured by

THE MILLER-BRYANT-PIERCE COMPANY

AURORA, ILLINOIS

GEORGIA BRANCH: 219-223 WALTON BLDG., ATLANTA

REG. U. S. PAT. OFF.

ROLLER CALF

R. NEUMANN & CO.

Hoboken, N. J.

Direct Factory Representatives in the South

PEARSE SLAUGHTER BELTING CO., GREENVILLE, S. C.

BARKLEY MACHINE WORKS

MANUFACTURERS OF TEXTILE MACHINERY PARTS

Cut Gears—Cast Tooth Gears

Parts for Kitson Pickers, Nasmith Combers, Whitin Combers. General Textile Repairs.

GASTONIA, NORTH CAROLINA

TEXTILE MACHINE DESIGNER WANTED

Interesting proposition in new field will be offered to right man. Address Box 91, care COTTON Grant Bldg., Atlanta, Ga.

Too much attention cannot be given to the oiling or cleaning of the frame. The frame hands should not be allowed to fan off the frames, but should be required to use a brush. The guides should be wiped on the doff. The steel roll stands and lifting shafts must be kept well lubricated, care being taken to see that none of the oil holes are stopped up. The roving skewers must not be allowed to become blunt. The creel steps should be checked frequently to see that they are not broken. Too much back lash in the gearing at the head of the frame is bad. It is necessary to have the correct cone gear so that the same amount of tension will be applied throughout the set if an even yarn is to be made. The doffs should not be run too full, as this will stretch the roving.

The spinning frames also ought to be overhauled twice a year. It is very important on these frames to keep the rolls properly set for the staple of cotton being run. Keeping on the correct number and flange traveler also means much to the good running qualities of spinning frames.

What has been said in regard to cleaning and oiling in the other departments, the importance of proper procedure along these lines, certainly holds true in the spinning room. Negligence in either will surely give us uneven yarns.

CONTRIBUTOR No. 5015.

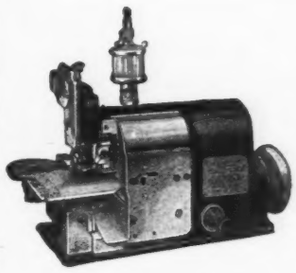
What About This Matter of Backing Off The Doffer While Grinding?

EDITOR COTTON:

In this letter I would like to thank all of the contributors to the "HOW OTHER MEN MANAGE" department for their support and service. It is my belief that this department is in line with the laws of ethics —that is, the more you give the more you have left. With this thought in mind I am going to ask some of the older heads to step into one of the discussions and make the path easy for us where they have already trod.

I would like to enter the controversy between "C. R. D." and "T. A. D." with regard to backing off the doffer to a full gauge while grinding. "C. R. D." says that this must be done, and "T. A. D." says No. Which one is correct? I contend that it would not be necessary to back a card doffer off at all when grinding provided the doffer and cylinder fillet is tight, the bearings in good condition, and the cards free from all cotton and lint accumulations.

When grinding a card, the doffer is supposed to be backed off far enough to provide ample space between the doffer and cylinder for small cuts of cotton or lint to roll through, and I have found that a 10/1000 gauge is a safe and sane setting at this point. If "C. R. D.'s" card clothing is so loose that he is compelled to back his doffer off to a full gauge when grinding, it would mean a big saving to his mill if he would re-set it. If it is not in this condition and he still prefers backing the doffer off to a full gauge, why back the comb off, too? I would prefer tying the comb down when it is at the extreme end of its bottom stroke, as this will leave ample space for the doffer to be backed off to a full gauge, if this is deemed necessary. T. R. (N. C.)



TRADE MARK
MERROW
REG. U. S. PAT. OFF.

HIGH SPEED TRIMMING AND OVERSEAMING OVEREDGING AND SHELL STITCH MACHINES

FOR USE IN THE FABRICATION OF KNITTED AND WOVEN GOODS OF ALL KINDS.

—200 VARIETIES FOR 200 PURPOSES—

WRITE FOR DETAILS REGARDING

MERROW STYLES 60ABB AND 60D3B MACHINES

PRODUCING A FLAT BUTTED SEAM (AS ILLUSTRATED BELOW) TO FACILITATE SUBSEQUENT PROCESSING OF TEXTILES

FINISHERS REPORT DEFINITE SAVINGS BOTH IN LABOR AND FABRIC. LET US DEMONSTRATE WORK OF THESE MACHINES ON YOUR OWN PRODUCT.

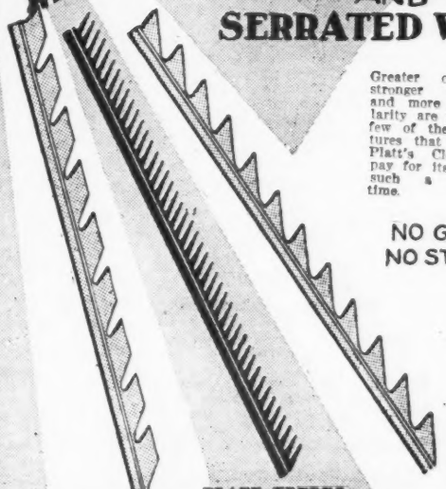
THE MERROW MACHINE COMPANY
16 LAUREL STREET HARTFORD, CONN., U. S. A.

Southern Representatives:
E. W. Hollister, P. O. Box 563, Charlotte, N. C.
R. B. Moreland, P. O. Box 895, Atlanta, Ga.

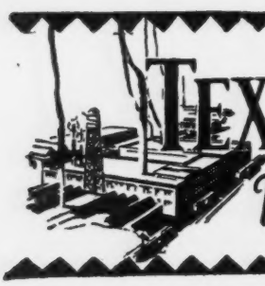
PLATT'S
METALLIC CARD CLOTHING AND SERRATED WIRES

Greater output, stronger thread and more regularity are just a few of the features that make Platt's Clothing pay for itself in such a short time.

NO GRINDING
NO STRIPPING



PLATT FRERES,
BOULEVARD DE LYON, ROUBAIX, FRANCE
Platt's Metallic Card Clothing Co.
P. O. BOX 407, LEXINGTON, N. C.
J. W. & H. Platt, Byron Works, Bouverie Rd., Harrow, England
Other Continental Branches in ROUEN, GHENT, BALE, MULHOUSE BARCELONA, TORINO, Etc.



TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

52. The Lincoln Twin Disc Floor Machine—showing the many advantages of clean, sanitary floors, the saving of time and labor through using floor cleaning machines and describing in detail the various models of Lincoln floor machines. Lincoln-Schlueter Floor Machinery Co., 213 W. Grand Ave., Chicago, Ill.

54. Shipper's Handy Helper—A forty-eight page booklet giving valuable information on shipping problems, including suggestions on packing, marking, numbering and invoicing shipments and describing the principal items generally used in shipping departments. Southern Shippers Supply Co., 118 Courtland St., S.E., Atlanta, Ga.

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

56. Technical Service Data—giving information on processes of textile manufacture in the use of oils, softeners, etc. National Oil Products Co., Harrison, N. J.

57. Reducing Textile Costs and Troubles telling all about the benefits of water treatment. Permutit Co., 440 Fourth Ave., New York, N. Y.

61. Belt User's Book—76-page book with suggestions, rules, tables and charts helpful in the purchasing, application, use and care of belting. J. E Rhoads and Son, 35 North 6th Street, Philadelphia, Pa.

62. Rubber Products for the Textile Industry—a 40-page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts showing horsepower rating pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan Inc., Passaic, N. J.

63. S-W Paint Standardization Plan—valuable booklet telling how protective coatings can effect economies in plant operation and maintenance, describing how each surface is finished to best meet its specific needs, giving ideal lighting and sanitary conditions and economies in increased production. Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., 40 East 34th St., New York, N. Y.

65. Why Cooper Hewitt Light is Better Than Daylight—a 16-page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176, describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

67. Specification and Size book, I-31, convenient reference book giving complete information and prices on Rockwood Short-Center Drive for textile machines. Rockwood Manufacturing Company, Indianapolis, Indiana.

68. Rockwood Pulley Specifications, a reference booklet giving complete specifications of 2,540 stock sizes of pulleys. Rockwood Manufacturing Company, Indianapolis, Indiana.

69. Monel Metal Equipment for the Textile Industry—a 50-page buyer's guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One-Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth accurate motion particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

71. Short Cuts to Power Transmission—A 74-page handbook for belt users, incorporating the most important phases of practical belting practices, including considerations in belt buying, care of belts, making belt joints, belt calculations, causes of belt troubles, etc. Flexible Steel Lacing Company, 4619 Lexington Street, Chicago, Ill.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

73. New Reeves Catalog T-32—A treatise on efficiency speed control—including valuable information of special importance to textile industry men and production executives outlining advanced methods of speed regulation. Reeves Pulley Company, Columbus, Indiana.

74. Colgate-Palmolive-Peet Bulletin No. T-22—booklet giving complete details of degumming and dyeing in a single bath with soap. Colgate-Palmolive-Peet Co., 919 North Michigan Ave., Chicago, Illinois.

75. The Facts About Armstrong's Seamless Cork Cots—A helpful book containing plain facts, cost studies based on actual mill records, expert analysis, complete details on the advantages of Armstrong's Seamless Cork Cots. Armstrong Cork Company, 923 Arch Street, Lancaster, Pa.

76. Jointite Cork Products—Giving information on the uses of cork for insulation purposes, including useful data, specifications, tables, and charts for roof insulation, refrigeration, sound-proofing, heat prevention, heat conservation, vibration deadening, and condensation prevention. It contains concise and valuable data on all of these subjects, as well as photographs and drawings showing specific examples of various types of construction, test curves, etc. Copy sent free to anyone interested in any of these subjects. Mundet Cork Corp., 450 Seventh Ave., New York, N. Y.

77. Bulletin T 200—illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages, and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

78. Booklet L 1289 A, Loom Motors and Control—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

79. Diamond Alkali Handbook—Containing useful information relative to Soda Ash, Caustic Soda, and Liquid Chlorine. Diamond Alkali Co., Koppers Bldg., Pittsburgh, Pa.

80. Alkaline and Other Detergents—a twenty page booklet on alkaline and other detergents and their function in textile processing and general cleaning operations. Diamond Alkali Co., Koppers Bldg., Pittsburgh, Penna.

85. Dyeing—A new 32 page "Handbook for the Hosiery Dyer" giving many pages of useful laboratory tables and data on the proper selection and use of boiling-off, dyeing and finishing products. Sent free by E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Penna.

86. Three New Textile Scouring Agents, a 32 page booklet which tells how scouring, boiling-off and finishing costs can be reduced by the use of a new type of detergent known as Golden Wonder Powder, by E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Penna.

87. Morehead Back-to-Boiler System—An interesting 44 page booklet, giving helpful information regarding the Morehead Back-to-Boiler System. Morehead Manufacturing Co., Department C, Detroit, Michigan.

1. Cotton Picking, Carding and Spinning—**Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling By Whitin Machine Works, Whitinsville, Mass.**

2. Pepperell Equipment—**10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.**

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. "Textile Brushes"—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

15. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2789 Greenview Ave., Chicago, Ill.

18. Popular Industrial Chemistry—162-page handbook for dyers, chemists, finishers, purchasing agents. By Kali Manufacturing Company, 1404 No. Front St., Philadelphia, Pa.

20. Bleaching, Dyeing, Finishing and Printing Textile Goods—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Woolley Co. 748 Rice St., Atlanta, Ga.

22. Tragasol and Its Uses—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakeo Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25—**"Lupogum" and "Monopole Oil"**—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting.—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—**A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.**

30. Lubrication of Textile Machinery—**32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.**

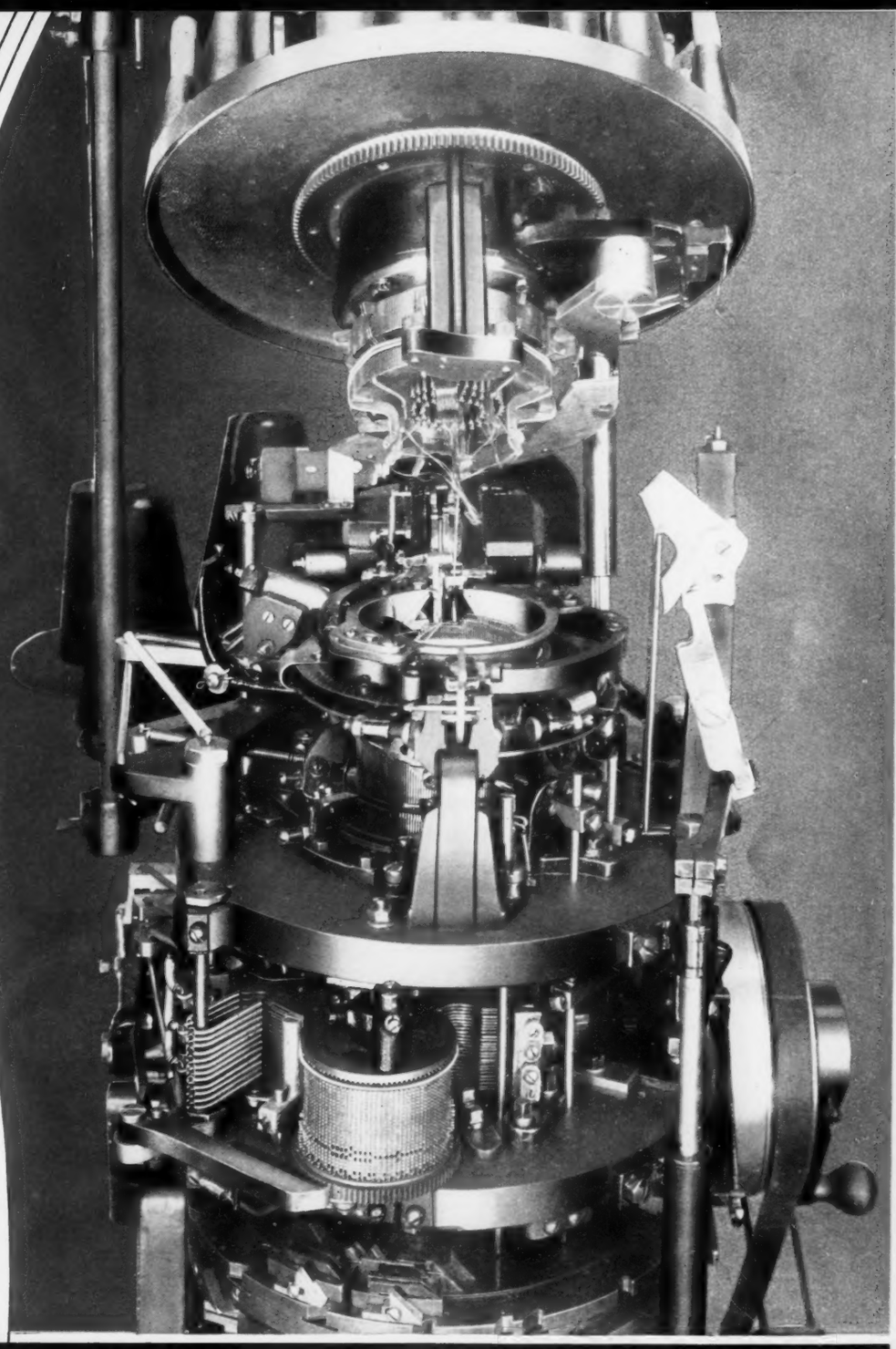
38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

41. Budget Control—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits. By Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on **Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.**)

42. Textiles and the Telephone Typewriter—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel and Tel. Co., Long Lines Department, Atlanta, Ga.

44. Points of Interest in and Around Atlanta—**36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.**

45. Fidelity Universal Ribbers—**A forty-eight page booklet showing the advantages and many styles of ribbed fabric and describing in detail and illustrating the latest developments in ribbers. Sent free on request by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, Pa.**



STANDARD TRUMP

Established 1872

NOTE THESE NEW FEATURES OF THE

CLEAN CUT DESIGNING SPEAKS FOR ITSELF

STANDARD 80 WRAP MACHINE

All pattern mechanism is in the front, for accessibility. . . wrap head can be put back, for clear view of the fabric . . . with wrap head back, it can be run as plain machine. Wrap yarns are knit without tension.

Mill owners, superintendents and fixers can see that the Standard 80 Wrap Machine has been designed from *their viewpoint* for mill operation . . . as well as to produce exclusive fabric.

STANDARD-TRUMP BROS. MACHINE CO.
INCORPORATED

366 BROADWAY · NEW YORK · N. Y.

KNITTING SECTION

fits

the way a glove fits

A gusset . . . neat, unseamed, knitted in as the toe is made, gives a remarkable tailored fit to the feet of hosiery made on Scott & Williams machines . . . the same snug smoothness that a glove finger has because it is "gusseted".

A toe that actually *fits*, with extra fabric knitted in for that proper "depth" to conform to the human foot, is an important part of your hosiery sales story. This "Gussetoe" is an exclusive Scott & Williams feature.

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

Established 1865

SCOTT & WILLIAMS

Incorporated

366 BROADWAY, NEW YORK, N. Y.

Silk---from the Cocoon to the Knitting Room

Part I.

By P. Wilson,
Sales Mgr., R. K. Laros Silk Co.,
and J. L. Gross

HERE is a most interestingly written discussion of the history, production and preparation of silk on its way from the cocoon to the knitting mill. We are sure that readers in knitting mills will be much interested in having in this form so well prepared and absorbing a discussion of their most important raw material.

This section covers the historical development and handling up until the silk is shipped to America, at which point the story will be taken up in the second and last installment . . . . . .

SILK, the most beautiful and lustrous of all materials used in the clothing of mankind, is, at the same time, the most romantic and fascinating. The glamour of the Orient is woven into every thread. Compared with silk—cotton, wool and their other more modern competitor, rayon, are rather commonplace. Silk, and the many fabrics knit and woven from this beautiful material are so universally and familiarly known that the unusual manner of its production cannot fail to be of interest.

It is impossible to definitely fix the date when the Chinese first learned to weave the silken filament into fabric. By the written records of their country we find that the art of converting to their own advantage the labors of the silk worm was known and practiced 2,700 years before the Christian era. The most commonly accepted legend pertaining to the discovery of silk takes us to the garden of Hsi Ling Shi, the child bride of Huang Ti, third Emperor of China. Strolling through her garden one day, she was annoyed to discover an ugly worm devouring the leaves of her sacred mulberry tree. About to destroy it, the thought came to her that it might be one of her ancestors in a new and strange form, so she returned to the mulberry tree day after day and watched the little creature eat and grow in size.

At last the time came when it ceased to eat. From below its mouth came two tiny threads which became a single glistening strand. The end of the strand was fastened to a twig, and as she watched, the worm began to wind the shining filament around its body. It continued to wind with a circular movement of its head until it was completely enveloped in a small silken ball. Amazed, the Empress carefully broke off the twig that held the cocoon and carried it to her Imperial Lord. A few weeks later, while holding it curiously in his hand, the Emperor witnessed a strange sight. The silken strands parted and from it emerged what he thought was the soul of an ancestor—a beautiful butterfly. In the hand of the Emperor remained a mass of soft lustrous fiber—silk.

From this beginning the Empress' interest was aroused. Experimenting, she found she could unwind the silk from the cocoons and reel their silken strands into fine yarn. She devised a crude loom for weaving this yarn into robes later worn by the Imperial family, exciting the admiration of all by their brilliance and beauty. Thus, silk making spread throughout the Chinese Empire. Hsi Ling Shi, for her wonderful cleverness and ingenuity was worshipped by posterity as the Goddess of the Silkworm.

For hundreds of years, the secret of silk was safe with the Chinese. The penalty for its disclosure was death. All the world saw these beautiful garments that came out of China and sought in vain to solve the mystery of their making. As the Roman Empire increased in area and power their commerce spread to all corners of the earth. Soon caravans were wending their way over the mountains and across the deserts of Asia carrying the finished product of the silkworm to adorn the ruling classes of the Roman Empire.

In the reign of the Emperor Tiberius, the use of silk was confined in Rome only to women of rank. Men were restrained by laws of the Senate from its use. The accumulated wealth and luxury of the Romans caused the demand for fabrics made of silk to increase faster than the supply, and the price became exorbitantly high.

In the second century the Emperor, Marcus Antonious, sent on this account an ambassador to China to open a more direct commercial inter-course with that country. Chinese historians record that this ambassador was no more successful than his predecessors and the Persians remained the only channel of communication for a long time. During the reign of the Emperor Justinian, the Romans were at war with the Persians and the price of silk rose to unheard of values. At last the Emperor, by arbitrary orders, limited the price to about $25.00 per pound. The merchants engaged in the traffic were ruined and silken fabrics were almost impossible to obtain. With their commerce almost at a standstill, they were offered relief in a very unexpected manner.

Two Persian monks, having been employed as missionaries by one of the Christian churches had penetrated into China. There, amidst their employment, they watched with curious eyes the manufacture of silk thread. They soon discovered that it would be impractical to transplant the short lived insect, but that it would not be impossible to preserve the eggs over a long journey and hatch them in a more distant country. They observed the habits of the worm and tried to make themselves familiar with the details of converting the cocoons into

Durene

NATURAL—BLEACHED COLORED and MERCERIZED YARNS

Main Office

123 South Broad Street
PHILADELPHIA

Manning St. HIGH POINT, N. C.
261 Fifth Ave. NEW YORK
418 Franklin St. READING, PA.
222 North Bank Drive CHICAGO, ILL.
James Building CHATTANOOGA, TENN.
38 Chauncy St. BOSTON, MASS.
HAMILTON, CANADA
LOS ANGELES

Mills

CHESTER, PA. **BELMONT, N. C.**

Representatives in all the principal countries of the world

ABERFOYLE MANUFACTURING CO.

first, the yarn, and then into fabric.

On their return to the West, instead of communicating their knowledge to their own countrymen, they proceeded to the Roman Emperor. They gave him the secret so carefully guarded by the Chinese. By the promise of great reward the Emperor persuaded them to return to China and there after much difficulty they succeeded in obtaining a quantity of silk worm eggs. These were concealed in a hollow cane and at length, in the year 552 A. D., arrived safely in Constantinople. The eggs were hatched and the worms fed on the leaves of the wild mulberry tree. Under the guidance of the two monks the Romans were instructed in the art of reeling and weaving silk. Thus, silk culture was introduced to Europe.

Japan is thought to have learned the process of silk culture about 300 A. D. and India about the same time. All of these countries became rivals of China in producing silk and succeeded to such an extent that at the present time Japan, Italy and France produce higher quality raw silk than the Chinese. Japan has outstripped the other countries in production of silk, and today about 85 per cent of all the raw silk consumed in the United States, the largest user of raw silk in the world, comes from Japan. In 1931 Japan delivered to United States Mills 505,760 bales of silk against a total delivery from all sources of 594,889 bales.

The various operations necessary before silk is ready for the knitting machine may be divided into three parts, namely, culture of the silk worm, reeling of the silk and the throwing of silk. The first two operations are carried on at the source, while the throwing operation is carried on in the United States.

Culture of the Silk Worm.

In describing the production of raw silk, we shall confine ourselves to the methods used in Japan because of its importance as a raw silk producer.

The life history of a silk worm begins with the hatching of an egg about the size of the head of a common pin and goes through the following stages in reproduction; first, the egg, then the worm spinning the cocoon inside of which it becomes a chrysalis, and then the moth.

In Japan the female moths are placed on cards, or sheets of heavy paper upon which the eggs are laid. Only producers with a license from the government are allowed to raise the eggs and all egg cards are under government inspection before they can be sold to farmers.

When first hatched, this worm is about one-eighth of an inch in length and black in color, Eight days after being hatched, the worm's head becomes noticeably larger and it is attacked by its first sickness or moulting. This lasts three days, during which time it refuses food and is motionless. At the end of the three-day period the worm changes its skin, after which it feeds steadily for five days and its length increases to one-half inch. Then a second moulting occurs. This is repeated until the fourth and last moulting, when the worm feeds steadily for ten days and attains its full size of about two and one half to three inches in length.

Ten days after the final moulting the worm ceases to eat and looks for a place to spin its cocoon. Its color is now a light green. The substance from which the silk is composed, is secreted in the form of a fine yellow transparent gum in two separate vessels. When the worm has found a suitable place for spinning its cocoon it begins its labors by spinning thin and irregular threads intended to support its future dwelling. The silken material which it spins appears to be one thread, but actually is composed of two fibers extracted from two openings just below and on opposite sides of the jaws. The two fibers are brought together by means of two hooks inside the mouth.

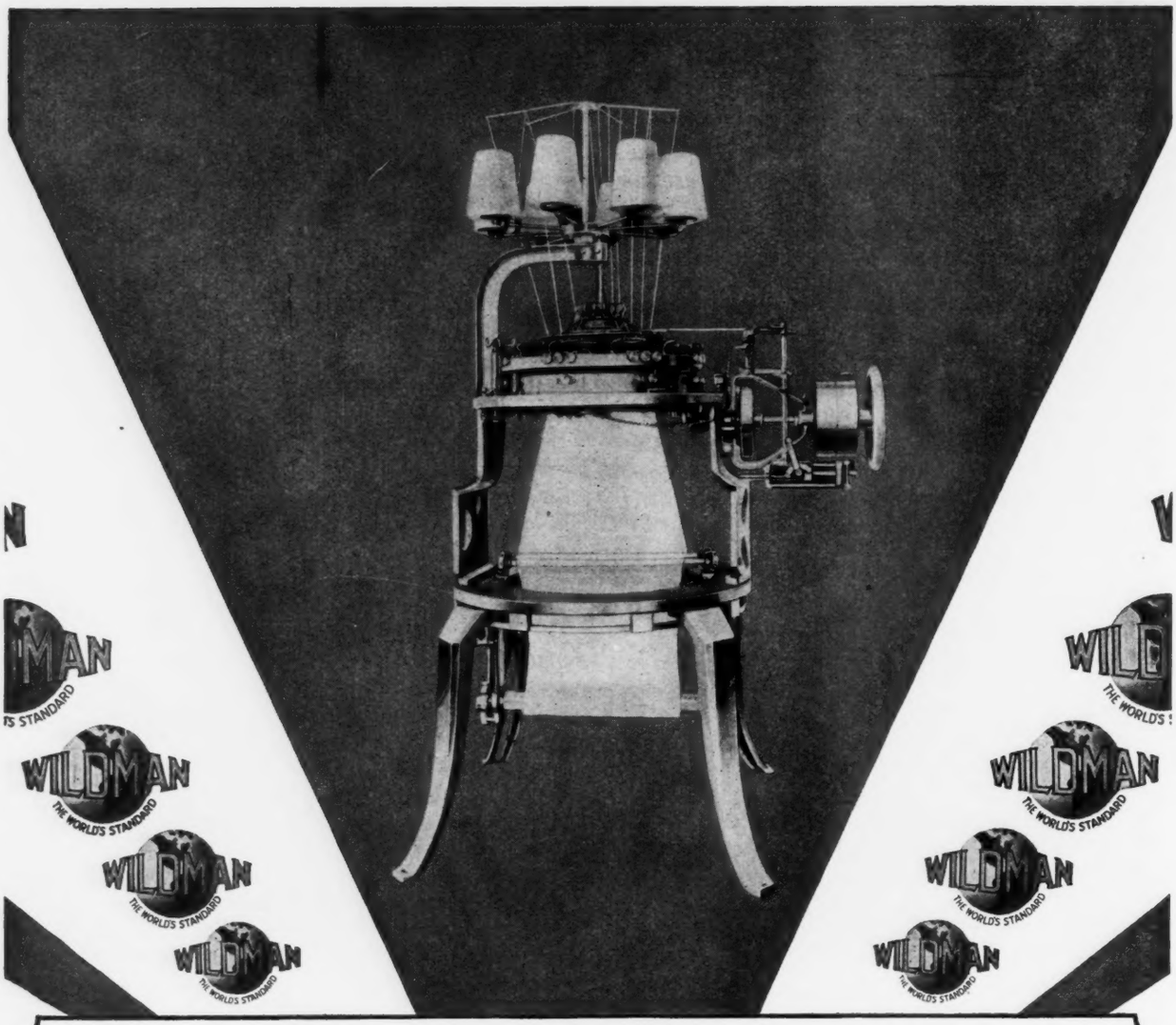
The cocoon is completed at the end of the third or fourth day. The filament of which the cocoon is made is covered at the end of the third or fourth day. The filament of which the cocoon is made is covered throughout its entire length by a gum called sericin which serves to give consistency and cohesion to its texture. The chrysalis remains in the cocoon unchanged for a period of fifteen to thirty days, depending on the temperature to which it is exposed. It then casts off its skin and emerges in the form of a large moth, greyish-white in color.

To avoid large investment in building and equipment, egg production in Japan has been developed into an almost continual process instead of a seasonal business.

The Japanese are constantly cross-breeding Italian, Chinese and Japanese moths in efforts to combine the best qualities of each in one cocoon. Almost all of the silk produced in Italy is yellow, while the Chinese produce both white and yellow. The Japanese formerly imported eggs from Italy. These eggs were hatched in Japan, the worm carefully fed and the cocoons compared with Japanese cocoons for quality. At the present time, the majority of yellow silk raised in Japan is from worms coming from cross-breeding of Italian and Chinese worms. Yellow silk contains a higher percentage of gum than white silk. The average boil-off of Italian yellow silk in 1931 was 23.20 per cent, while the boil-off of Japanese yellow was 21.38 per cent as compared to 18.37 per cent for Japanese white silk. This yellow color can largely be removed by boiling off, although usually a slight pigment remains in the fiber. This yellowish tint remaining in the fiber detracts somewhat from its value for hosiery purposes due to the difficulty in dyeing light shades. Yellow silk has better cohesion than white and can be used to advantage in the darker shades.

As soon as the mulberry trees show signs of buds the farmer prepares to hatch the eggs. The eggs are placed in incubation at a temperature of between 70 and 75 degrees Fahrenheit and the eggs hatch in about ten to fourteen days.

A remarkable thing about the silk worm is its tremendous appetite. At birth, less than an eighth of an inch long, in ten days it has grown to a full inch in length. During the 30 to 40-day period from hatching to the spinning of the cocoon the worm



Rayon Manufacturers! The Wildman Machine operates at lower cost—with less needle breakage—without raveling waste—with imperfections reduced to a minimum.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

consumes 50 times its own weight in mulberry leaves. A faint idea of the enormous quantity of mulberry leaves needed to feed Japan's annual crop of silk worms can be gathered from the fact that 80 moths or butterflies produce about forty thousand eggs. From these eggs come one hundred pounds of cocoons, which, in turn, produce about nine pounds of raw silk.

After the worms spin their cocoons they are collected and carefully inspected. About one percent of the very finest cocoons are set aside for breeding purposes and allowed to go through the final stages of chrysalis and moth. Within two weeks after spinning of the cocoon, the worm inside must be killed to prevent its transforming itself, eventually, into a moth and piercing the cocoon. The balance of the crop, therefore, are stifled by subjecting the cocoons to heat. The farmer generally finds about 85 per cent of the crop to be of good quality. The balance are all inferior grade and are used for spun silk or waste.

Silk is the strongest natural fiber known to man. Science, with all the skill at its command, has been unable to produce artificially, a thread so fine, elastic and strong. The filament, as it is unwound from the cocoon is so fine in size that about three thousand of them, laid side by side, would be required to cover one inch. Since this is far too fine for commercial use, several of them must be united into one strand. The combining of these threads is known as reeling.

The unit of measure of raw silk is the denier. This is a silk fiber 450 meters long and weighing .05 grams. The average size of one fiber in a Japanese cocoon is about three deniers. Various sizes of raw silk are used in the United States, 13/15 and 20/22 being generally employed in the hosiery industry, but other sizes are used occasionally. In order to make a thread in the size of 13/15 deniers, four to five cocoon filaments are used and for 20/22 seven or eight cocoon filaments are required.

The Process of Reeling.

Modern reeling plants known as filatures have replaced the older method of hand reeling in Japan. These modern filatures are divided into two departments, the reeling and re-reeling. In the reeling department the single cocoon ends are combined and twisted into the desired denierage. The re-reeling department takes the small skeins or bobbins from the reeling department and rewinds them into larger skeins better adapted to the requirements of the American mills.

Before going to the reeling department, the cocoons are first carefully selected and graded according to quality. The well shaped clean cocoons are set aside for reeling into the higher grades of raw silk. The balance are reeled into the lower grades.

The cocoons are soaked in water varying in temperature from luke-warm to boiling to soften the sericin covering the filament. They are then placed in basins before which the reeling girls sit. The cocoons are submerged in water, the temperature of which is regulated by heat coils. The reeling girl finds the true end of the cocoon filament by means of a brush which removes the outer covering of fluffy waste. When the true end is found, the operator combines the filaments from several cocoons, depending on the size thread to be reeled, leads them through a small porcelain eye near the surface of the basin, and then over a series of small reeling wheels. The filaments are then twisted several times to the inch during the reeling process and are cemented together while the sericin is still soft.

It can be readily seen that a great deal depends on the skill of the reeling girl to insure a clean even thread with good cohesion. The operation is rendered still more difficult by reason of the fact that the reeling girl must watch a large number of basins.

Due to the difficulty in obtaining experienced reeling girls since the production of silk has reached such large proportions, the larger filatures have made every effort to develop improvements in reeling machinery. Some of these filatures are now using reeling machines equipped with devices that stop the motion of the reel when a cocoon filament runs out or a piece of waste gathers on the thread.

The Re-Reeling Operation.

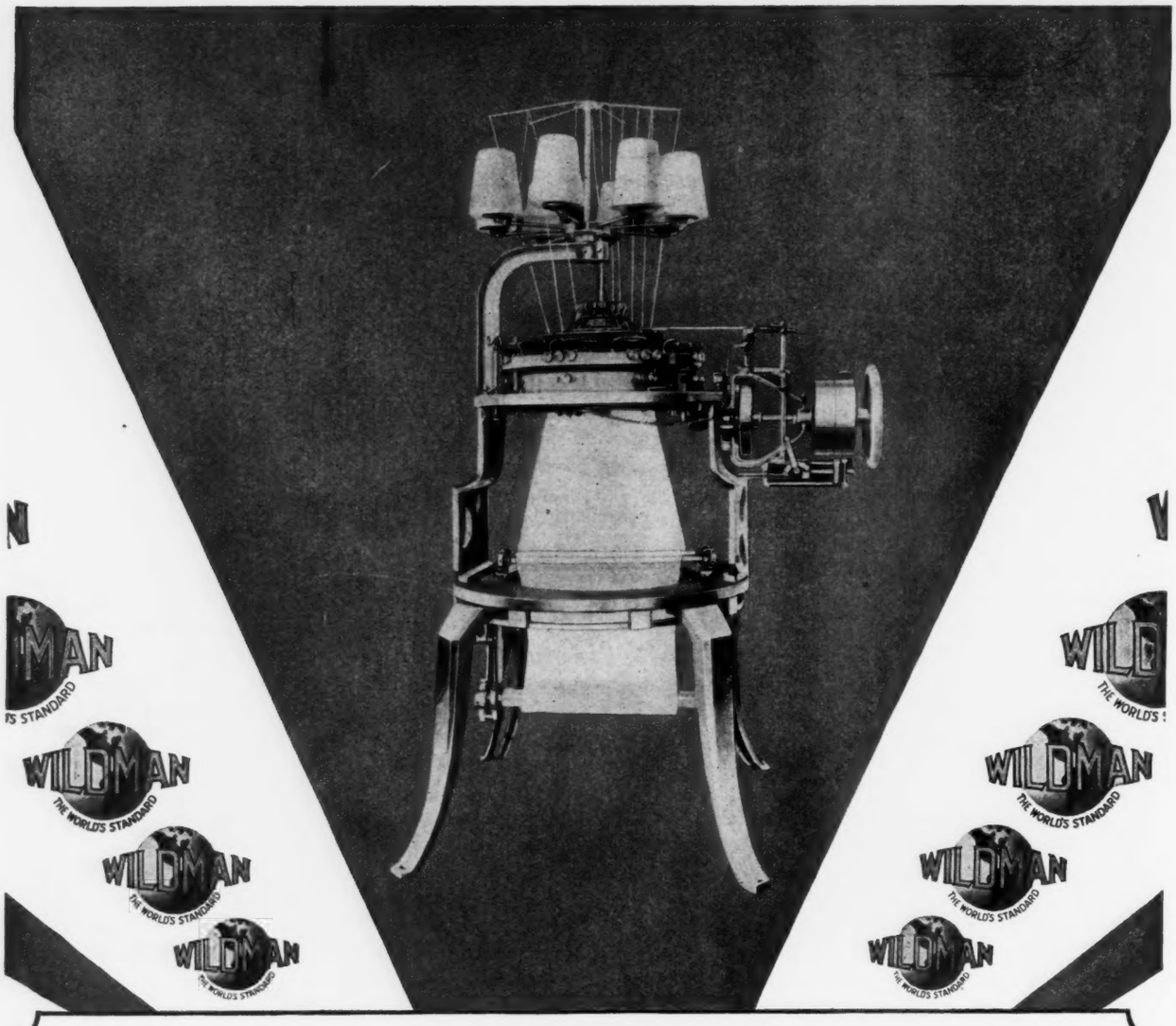
In order to produce a well formed skein easily rewound in American mills nearly all silk produced in Japan is re-reeled. The small skeins produced in the reeling department, or in some instances bobbins, are rewound onto a standard size reel having a circumference of about 59 inches.

In the re-reeling, the threads are crossed over each other diagonally. The method of reeling Japanese silk for American consumption is largely known as Grant reeling. Due to its many advantages resulting in the elimination of winding difficulties formerly encountered in American mills, Grant reeling has been adopted by the Silk Association of America as standard practice.

The Japanese use the re-reeling operation also as a means of checking the workmanship performed in the first reeling. Sample skeins are carefully weighed to check the size and in many of the larger filatures the seriplane is used as an additional check on the quality of silk.

After re-reeling, the skein is laced to prevent losing the diamond pattern and to permit easier handling in packing. The skeins are then tightly twisted, folded once and one end tucked into the other to make a compact roll. Thirty of the rolled skeins selected for uniformity of color and quality are then packed into rectangular packages called books. These books weigh about four and one half pounds. Thirty books are then packed into a bale weighing about 133 pounds and the product of the silk worm is ready for its long journey to the United States.

The second installment of this article, which will complete it, will appear in the September issue. In this next installment the authors will continue their discussion of the movement of the silk into the United States, and will cover the various steps through which the fiber passes on its way to the knitting mill. Also will be given information on test methods, etc.—The Editor.



Rayon Manufacturers! The Wildman Machine operates at lower cost—with less needle breakage—without raveling waste—with imperfections reduced to a minimum.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

consumes 50 times its own weight in mulberry leaves. A faint idea of the enormous quantity of mulberry leaves needed to feed Japan's annual crop of silk worms can be gathered from the fact that 80 moths or butterflies produce about forty thousand eggs. From these eggs come one hundred pounds of cocoons, which, in turn, produce about nine pounds of raw silk.

After the worms spin their cocoons they are collected and carefully inspected. About one percent of the very finest cocoons are set aside for breeding purposes and allowed to go through the final stages of chrysalis and moth. Within two weeks after spinning of the cocoon, the worm inside must be killed to prevent its transforming itself, eventually, into a moth and piercing the cocoon. The balance of the crop, therefore, are stifled by subjecting the cocoons to heat. The farmer generally finds about 85 per cent of the crop to be of good quality. The balance are all inferior grade and are used for spun silk or waste.

Silk is the strongest natural fiber known to man. Science, with all the skill at its command, has been unable to produce artificially, a thread so fine, elastic and strong. The filament, as it is unwound from the cocoon is so fine in size that about three thousand of them, laid side by side, would be required to cover one inch. Since this is far too fine for commercial use, several of them must be united into one strand. The combining of these threads is known as reeling.

The unit of measure of raw silk is the denier. This is a silk fiber 450 meters long and weighing .05 grams. The average size of one fiber in a Japanese cocoon is about three deniers. Various sizes of raw silk are used in the United States, 13/15 and 20/22 being generally employed in the hosiery industry, but other sizes are used occasionally. In order to make a thread in the size of 13/15 deniers, four to five cocoon filaments are used and for 20/22 seven or eight cocoon filaments are required.

The Process of Reeling.

Modern reeling plants known as filatures have replaced the older method of hand reeling in Japan. These modern filatures are divided into two departments, the reeling and re-reeling. In the reeling department the single cocoon ends are combined and twisted into the desired denierage. The re-reeling department takes the small skeins or bobbins from the reeling department and rewinds them into larger skeins better adapted to the requirements of the American mills.

Before going to the reeling department, the cocoons are first carefully selected and graded according to quality. The well shaped clean cocoons are set aside for reeling into the higher grades of raw silk. The balance are reeled into the lower grades.

The cocoons are soaked in water varying in temperature from luke-warm to boiling to soften the sericin covering the filament. They are then placed in basins before which the reeling girls sit. The cocoons are submerged in water, the temperature of which is regulated by heat coils. The reeling girl finds the true end of the cocoon filament by means of a brush which removes the outer covering of fluffy waste. When the true end is found, the operator combines the filaments from several cocoons, depending on the size thread to be reeled, leads them through a small porcelain eye near the surface of the basin, and then over a series of small reeling wheels. The filaments are then twisted several times to the inch during the reeling process and are cemented together while the sericin is still soft.

It can be readily seen that a great deal depends on the skill of the reeling girl to insure a clean even thread with good cohesion. The operation is rendered still more difficult by reason of the fact that the reeling girl must watch a large number of basins.

Due to the difficulty in obtaining experienced reeling girls since the production of silk has reached such large proportions, the larger filatures have made every effort to develop improvements in reeling machinery. Some of these filatures are now using reeling machines equipped with devices that stop the motion of the reel when a cocoon filament runs out or a piece of waste gathers on the thread.

The Re-Reeling Operation.

In order to produce a well formed skein easily rewound in American mills nearly all silk produced in Japan is re-reeled. The small skeins produced in the reeling department, or in some instances bobbins, are rewound onto a standard size reel having a circumference of about 59 inches.

In the re-reeling, the threads are crossed over each other diagonally. The method of reeling Japanese silk for American consumption is largely known as Grant reeling. Due to its many advantages resulting in the elimination of winding difficulties formerly encountered in American mills, Grant reeling has been adopted by the Silk Association of America as standard practice.

The Japanese use the re-reeling operation also as a means of checking the workmanship performed in the first reeling. Sample skeins are carefully weighed to check the size and in many of the larger filatures the seriplane is used as an additional check on the quality of silk.

After re-reeling, the skein is laced to prevent losing the diamond pattern and to permit easier handling in packing. The skeins are then tightly twisted, folded once and one end tucked into the other to make a compact roll. Thirty of the rolled skeins selected for uniformity of color and quality are then packed into rectangular packages called books. These books weigh about four and one half pounds. Thirty books are then packed into a bale weighing about 133 pounds and the product of the silk worm is ready for its long journey to the United States.

The second installment of this article, which will complete it, will appear in the September issue. In this next installment the authors will continue their discussion of the movement of the silk into the United States, and will cover the various steps through which the fiber passes on its way to the knitting mill. Also will be given information on test methods, etc.—The Editor.

For Maximum Production

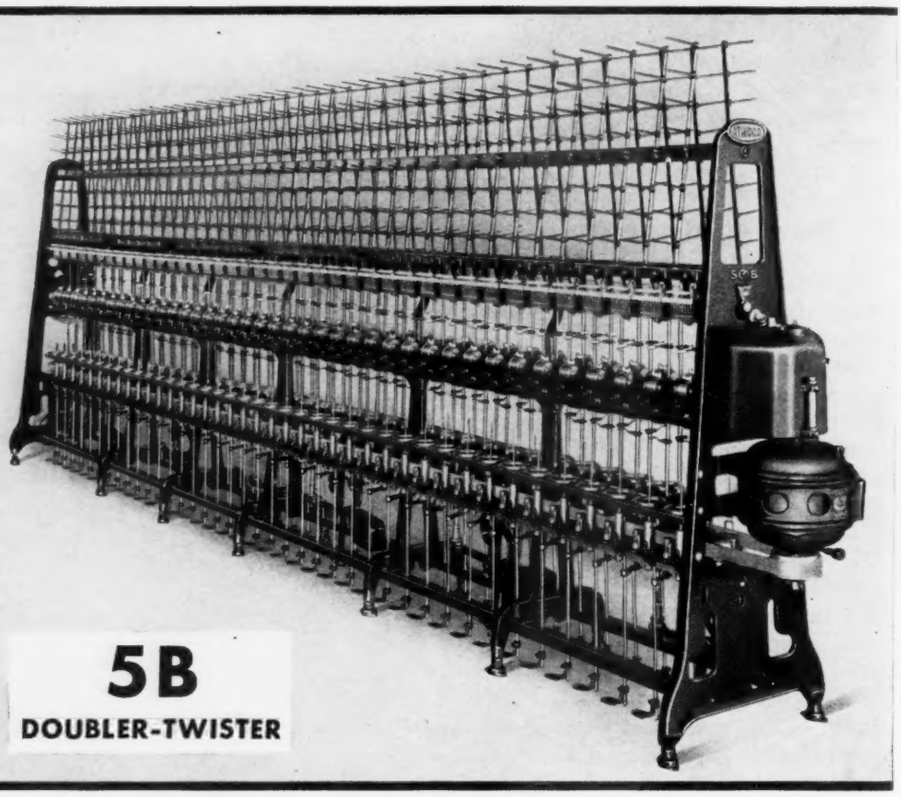
THE 5B IS HIGHLY RECOMMENDED FOR THE MANUFACTURE OF

NOVELTY YARNS

FROM SILK, RAYON AND OTHER YARNS OF FINE COUNTS

OUR NEW ATTACHMENTS ARE EASILY APPLIED TO ANY 5B

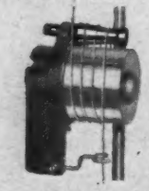
WRITE FOR DETAILS



5B
DOUBLER-TWISTER

ATWOOD "BALL TOP" SPINDLE with the "Ball Top" Blade and the New, Improved Spindle Step providing MAXIMUM EFFECTIVE OIL CAPACITY

ATWOOD LAP-PROOF SEPARATOR ROLL



Roller laps are practically eliminated by this new Ball Bearing Separator Roll. Write for sample and descriptive folder.

ATWOOD

and Quality

FOR best results with "5B" machines, select the rings, feed rolls, separators and other attachments best fitted to your own particular needs. Maximum production varies with the product made and with your own quality standards.

Spindle speeds are not limited except by the above factors.

Atwood's advice, based on this long experience, is yours for the asking.

FOR SILK AND RAYON

Atwood machinery is standard throughout the world

WINDERS—DOUBLERS—DOUBLER TWISTERS—REDRAWS

THE ATWOOD MACHINE COMPANY

FOUNDED 1852

STONINGTON, CONN., U. S. A.

Sales Offices: New York Wilkes Barre, Pa. Stonington, Conn.
Charlotte, N. C. Los Angeles, Calif.

ATWOOD MACHINES THROW THE BULK OF AMERICA'S SILK AND RAYON

2335

Causes of "Seam Peaks" in Picot on Full-Fashioned.

A SUBSCRIBER recently submitted some samples of full-fashioned hose containing a defect which he termed "seam peaks." He pointed out that upon examining the picot in the welt on the end, where the picot meets the seam, it would be noticed that the picot was turned out. He asked for examination of the samples and opinions as to the probable cause of this. One man to whom this was submitted answered as follows:

"The samples show that the leg pattern has been knit much looser on either side of the pattern than in the center, and that one side of the pattern is knit much looser than the other side. This trouble has been caused by poor alignment of needles.

"Some of the trouble has probably been caused by bad tension adjustment. It is almost impossible for even a skilled back seamer to back seam such a pattern without continuously pulling back on the stocking as it is being fed through the cup wheels on the back seaming machine in an effort to keep the points of the stocking which should agree—such as the high spliced heel line, narrowing marks, welts, etc.,—in perfect alignment. In an effort to produce these desired results the fabric is unduly stretched as it is fed into the cup wheel up to a point where the hem is nearing completion; and the last inch of seaming has to be passed through the wheel in a natural way on account of not being of sufficient length for a finger hold and further stretching. Through this procedure the inside of the hem is not stretched as much as the outside. Therefore, the outside fabric contracts more than the inside and pulls the picot off of center of the top of the hem. I believe this to be the main cause of the inquirer's trouble.

"I also think that his back seam is too heavy for a stocking of the type of the sample, and his trouble will be overcome to some extent by making a neater seam and a few less stitches per inch. He will also find an improvement in the condition by using either a heavier thread in his welt or by knitting a little tighter. In fact, to be perfectly frank, it is evident that a skimpy stocking apparently is being made as a price proposition, and he will undoubtedly be much better off in the long run to put more courses per inch in his stocking and make a better fabric even if he found it necessary to ask a slightly higher price for his merchandise. This is submitted purely as constructive criticism and I realize that this suggestion is something of a digression from the problem under question. At the same time, the sample indicates how hard it is to keep one's cake and eat it too. If this man insists on producing a stocking of the quality submitted he will certainly have to get his fabric in much more uniform shape than is indicated by the sample. This being done, he can certainly expect a big drop in his trouble. On the other hand, he need not expect to reduce this trouble to the low satisfactory minimum that may be obtained were he producing a well balanced stocking."

Another knitting mill man examined the samples and said:

"With reference to the inquiry about the unbalanced welt with the picot on the outside on the seam edge which the writer terms 'seam peaks'.

"This welt is knit very light and sleazy and would naturally be very difficult to keep in shape. I believe the trouble is caused by the knitter in turning the welt. The fabric being so sleazy, it is stretched on the edges when the knitter pulls the stitches back to the base of the welt hook preparing for the transfer; then again when he passes the stitches from the welt hooks to the needles in making the transfer.

"The two edges are stretched more than other parts of the inside hem, which makes these inside selvage edges longer than the outside selvage edges when the hem is complete, making the seam longer on the inside of the hem than on the outside, which throws the picot edge out of center and over on the outer edge. This condition can be aggravated by the seam not being elastic enough, drawing the fabric slightly,

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

and since the outside is seamed over all and the inside only half way, the seam would tend to make the outside the shorter and unbalance the picot."

Any other readers who have run into this difficulty and have solved it are invited to submit their experiences and their opinions as to the cause and remedy of this trouble.

A Gauge for Worn Selector Fingers on Spiral Float Machines.

EDITOR COTTON:

When a Model K spiral float hosiery machine has been run for sometime—for instance about a year—the selector fingers become more or less worn where they contact with the drum jacks. This wear is never uniform, creating a condition which makes adjusting the drum to overcome this wear very difficult. The writer has devised an instrument or indicator so that this contacting surface may be readily ground so as to form a new contacting surface on the selector fingers.

This indicator consists of a plate of 1/16-inch cold rolled steel 6½ x 4 inches, fastened by means of wood screws, to a block of wood of the same dimensions but ⅞-inch thick. (See Fig. 1.) The boss *C* which

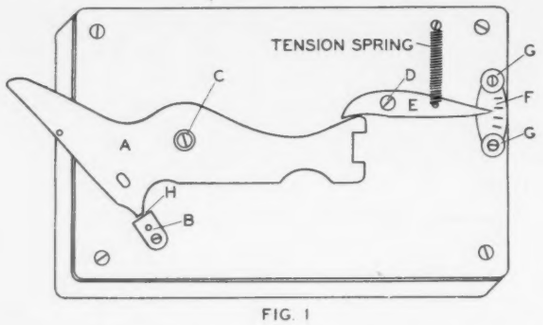


FIG. 1

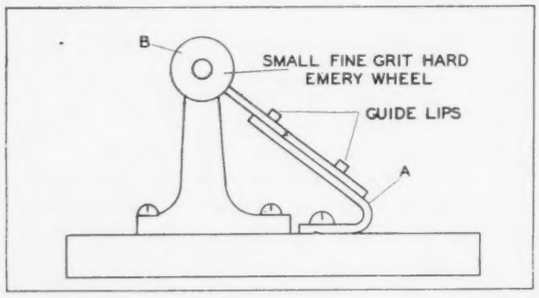


FIG. 2

should be ⅜ inch in diameter to fit the hole in the selector finger, is fastened to the plate with a 6/32 flat headed screw, and plate *B*, 1/16-inch thick, is fastened to the base with 2 6/32 filister headed screws. The indicator lever *E* is fastened loosely to the base with studded screw *D*. This indicator lever is made of 1/16-inch cold rolled steel. The part marked *F* is a piece of white sheet celluloid about 1/32-inch thick and is clamped in place with two 6/32 filister headed screws set in washers at *G*.

To use this indicator one should test each selector finger by placing it on boss *C* and holding it tightly in contact with plate *B* noting, by making a pencil mark on part *F*, the location of the indicator lever reading for each selector finger. Then take the finger that had made the lowest reading. Dress the surface *H* of the selector finger with small emery wheel, shown in Fig. 2, using guide *A*, Figure 2, to hold it on radial line in respect to the center of the wheel. This gives a slightly concave surface which tends to make the finger alignment with the drum jacks more accurate.

With a little practice a set of 25 of these fingers may be made perfect again by dressing the contact surfaces so that they read the same as the first one.

CONTRIBUTOR NO. 6134.

Wants Discussion on Soap and Chemical Test Methods.

EDITOR COTTON:

The "KNITTING KINKS" section of COTTON, having been the source of many ideas of exchange of general interest to the knitting divisions of the industry, and of particular interest to this contributor, it seems those interested in other divisions of knit goods manufacture, such as yarn handling, seaming, looping, stock handling, dyeing and finishing, are overlooking a good bet for a profitable exchange of ideas through these columns.

In an effort to assist along these lines it will be interesting to see some discussion on simple methods for testing the efficiency of various soaps, soluble oils, solvents, scouring compounds and penetrating agents, etc.

Such tests in the writer's opinion are best made as near practical as possible, and on a comparative basis with the highest standard available. For instance, in testing a scouring formula consisting of soap, scouring oil and soda ash for scouring rayon and cotton hosiery in a 20 to 1 bath, one may start with 2,000 parts by weight of water, 100 parts by weight of material and any known suitable scouring formula with correct percentages, and carry out the scour, after which the scouring bath may be saved in a glass container and observed for standing results.

Using these results as a standard other scouring tests can be carried out in the same way and compared and possibly will reveal where a change in these percentages or possibly the elimination of one or more of the agents used will give better results at lower cost.

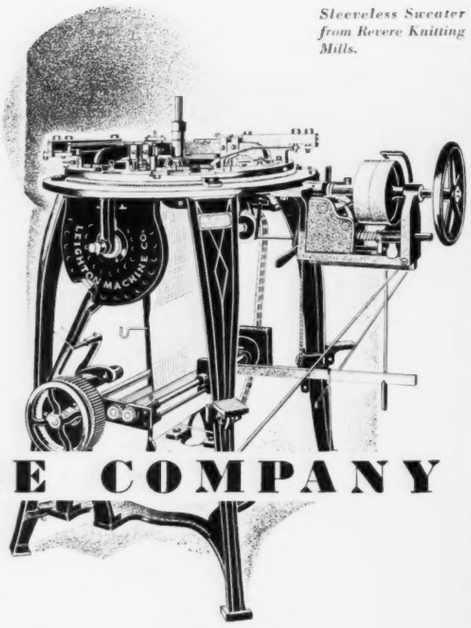
Most rayons contain from 6 to 10 per cent of oil and from rayon and cotton goods of 100, assume 80 parts are rayon containing 10 per cent oil, which is 8 parts or 8 per cent of the total weight of the goods. If there is 5 per cent foreign substance to remove from the 20 per cent cotton this amounts to one per cent, and added to 8 per cent equals 9 per cent to be removed, and a proper scour will throw same into solution in the scour bath which should be stable enough not to precipitate out before drained from the goods.

Now suppose upon draining, the goods have been thoroughly scoured and contain twice their weight of

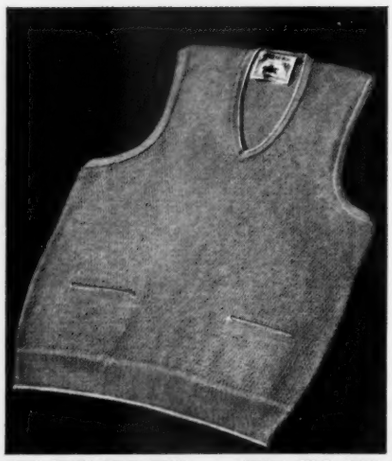
Guesswork has no place in the manufacture of needles, which must be uniform to the last mathematical degree. And for that reason, Torrington Spring Beard needles are made by smooth-running, tireless machines. Their alikeness, and the steady quality of the work they do, are ample proof of the value of this mechanical control.

TORRINGTON *SPRING BEARD* **NEEDLES**

A Leighton Automatic Rack Sweater Body Machine.



Sleeveless Sweater from Revere Knitting Mills.



"BY THE COMPANY THEY KEEP"

Good merchandise, good machines, good needles; there's an inevitable combination. And it is the reason why you'll see Torrington Latch Needles used in this Leighton machine . . . producing such salesworthy garments as this sleeveless slip-on from the Revere Knitting Mills.

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

BRANCHES:

THE TORRINGTON COMPANY . . . 1640 FAIRMOUNT AVE., . . . PHILADELPHIA
THE TORRINGTON CO., INC., . . . 140-144 W. 22ND STREET, . . . NEW YORK, N. Y.
LOS FABRICANTES UNIDOS, . . . 964 CALLE BELGRANO, . . . BUENOS AIRES

FACTORIES AT:

TORRINGTON, CONN. • UPPER BEDFORD, QUEBEC
COVENTRY, ENGLAND • AACHEN, GERMANY

TORRINGTON *Latch* NEEDLES

scouring bath, which, including the goods, equals 300 parts. This is 300/2100 or 1/7 of the original goods in the bath, and this 1/7 of 9 per cent equals 1.29 per cent of the original oil remaining in the goods, so that a good rinse is needed to reduce this. To compare this scour with another, samples of the different scours may be saved for observation which should be of some assistance in determining the best.

This crude illustration is furnished to encourage some outlines of simple practical tests that no doubt many will join in, after the ball starts rolling, and everyone will benefit.

CONTRIBUTOR No. 6130.

Dyeing Cotton-Rayon Hosiery by the One-Bath Method.

EDITOR COTTON:

We hosiery dyers are interested in saving all we can in the dyehouse. At times, in order to save time, we are nearly forced to dye cotton-rayon hosiery with the one-bath method. The two-bath method is the surest and safest way to dye this type of hosiery, especially when the stocking is made with mercerized heel and toe. Nevertheless, the one-bath method works very satisfactorily, that is, if the process in dyeing, etc., is carried out properly.

Most hosiery dyers are acquainted with the difficulties connected with the dyeing of cotton-rayon hosiery. There are several points to be taken into consideration when anyone refers to dyeing this type of hosiery; the bright light shades, and their fastness to washing, penetration, and in order to get level dyeing; taking the white, undyed spots out of the seams of the toe and heel; union between the rayon and cotton, and giving the goods a good soft finish. Selecting the proper kind of dyestuffs is very important. Get good colors; although the price may be a bit high the saving will come in when the re-dyes are cut down. There should not be any re-dyes to amount to anything and if they are accumulating in a hurry around the dyehouse, the dyer should look around and find what the trouble is. Poor dyestuffs may be the reason.

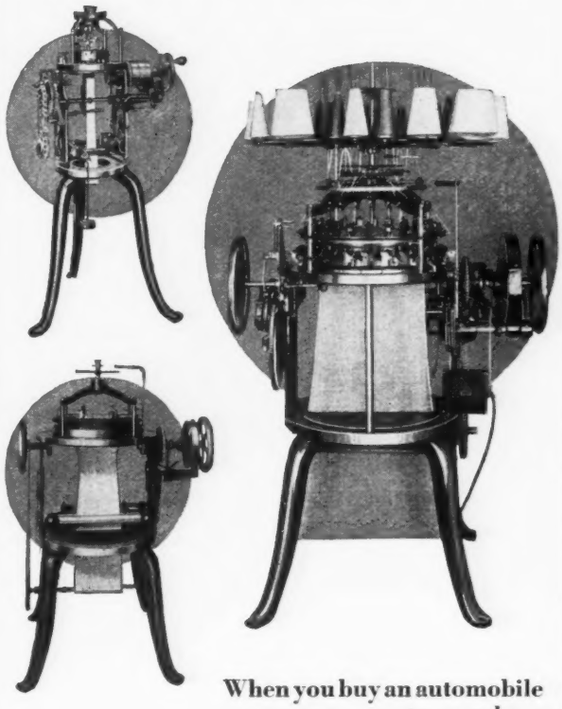
Water is another important item in dyeing. I endeavored to explain the quality of water which should be used for dyeing in a letter which was published on page 1092 of the September, 1931, issue of COTTON.

When dyeing cotton-rayon hosiery by the one-bath method, there must be enough penetrating oil or soap and a detergent to take the winding oil off of the rayon and hold it in suspension during the dyeing operation, and at the same time get complete level shades as desired.

Penetrating oils are needed in dyeing. Soap is used where soft water is employed. Tri-sodium-phosphate is used as a detergent. All ingredients should be of a good quality.

Hosiery is usually dyed in a paddle machine or a rotary pocket machine, but the type of machine used doesn't make much difference. Results are what most dyers want, not being interested about the type of the machine used.

MODERNIZE *your* PLANT *with* BRINTONS



Ribbers of every type.

Jersey Machines Plain and Fancy Stitches.

Rib Body Machines For Underwear and Bathing Suits.

Sweater Machines Rib and Jersey Types.

Special Knitting Machines From ¼ inch to 36 inches.

When you buy an automobile—you are sure to purchase a car with a proud performance record. Why not apply the same excellent logic when you equip your mill with knitting machines? The name Brinton stands as high in its field, as Rolls-Royce, Packard, and Cadillac in the automotive industry.

Depend on Brintons

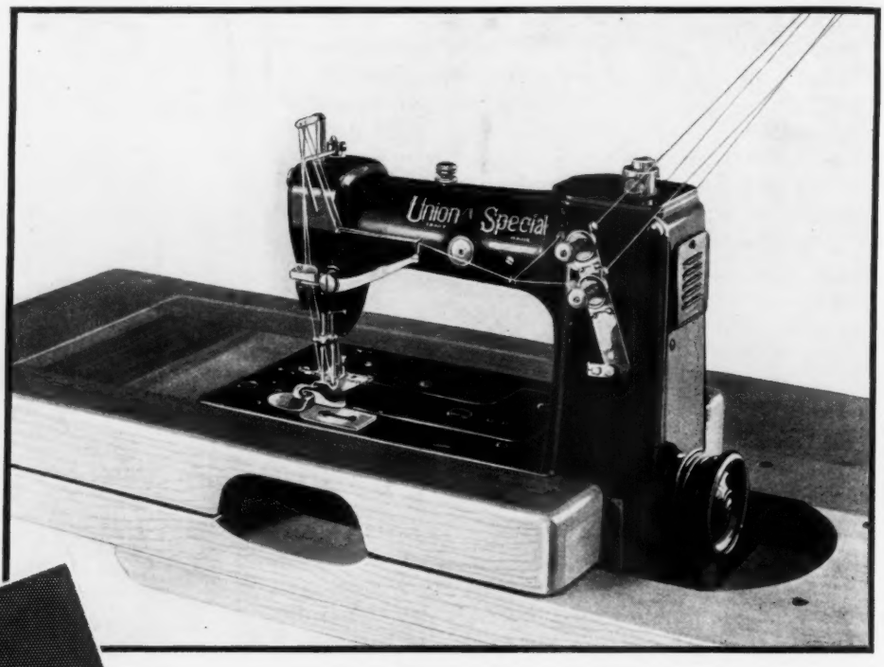
H. BRINTON COMPANY

3700 Kensington Ave., Phila.

New York Office: 366 Broadway

BRINTON CIRCULAR KNITTING MACHINES

of EVERY Kind for EVERY Purpose



This is the new semi-submerged isolated installation for Union Special flat bed seamers.

There is only ONE REASON for a repeat order!

A well known overall maker* having had one of the new Union Special flat bed seamers in operation since December 30, 1931, has just installed a duplicate. The first machine may have been bought on faith, or for a trial, but satisfactory performance brought the order for another one like it.

High speed, improved quality of work, and economy are the features that distinguish the new Union Special Fifty Thousand Series flat bed seamers. Write for data on work similar to yours.

*Name on request.

ISOLATED INSTALLATION
Patent Applied for

Makers of Special Sewing Machines for all Manufacturing Purposes

UNION SPECIAL MACHINE CO.
400 North Franklin Street Chicago, Illinois

C-8-Gray

The stockings are placed in bags—regular laundry nets are good—four dozen pairs are put in each bag that goes into a rotary machine, and five dozen pairs to a bag for the paddle machine. Neither the bags nor the machine must ever be overcrowded, if thorough penetration and level dyeing are to be secured.

Put the goods in the machine, bring the proper amount of water into the machine at 120 degrees F., start the wheel to rolling, and add two to three per cent of tri-sodium-phosphate and four to six per cent of a good penetrating oil or soap if water of a soft quality is used. Let the goods run in this solution for at least five minutes, then add the well dissolved dye to the goods that are in the machine. Bring the dye bath to a boil slowly, let it take from 15 to 20 minutes coming to a boil, allow the dyebath to boil 15 minutes, then add the salt. The amount of salt depends on the depth of the shade and the nature of the dyestuffs. Continue boiling for 15 minutes, make sample, and if the correct shade has been obtained, the dyebath is flushed and fresh water brought in, and the goods rinsed thoroughly. When a heavy shade is dyed, and it is desired to make the goods wash well, the hosiery can be treated with one per cent acetic acid and three per cent formaldehyde where direct colors are employed, then rinse and soften. Then the hosiery is extracted and boarded.

CONTRIBUTOR No. 6118.

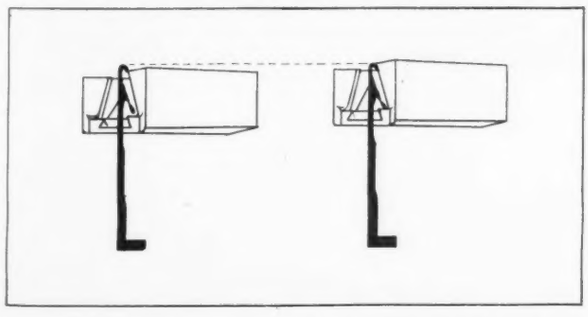
Preventing Drop Stitches, Cuts, and Loops and "Streaks" on Banner Machines.

EDITOR COTTON:

We recently had a dicscussion as to the most likely causes of holes in the heel and toe, and of uneven stockings, that is, hosiery with tight or loose bands around it or tight and loose streaks up and down, on the Banner type of knitting machine, and I thought I would pass our opinion along for the interest of your readers.

There are several kinds of heel and toe trouble, namely, drop stitches, cuts and loops.

The causes of these defects are numerous. Taking up first the subject of drop stitches and loops, these



Illustrating the correct and incorrect setting of mouthpiece . . . . . .

could be caused by having a yarn lever, which is too long, in the heel and toe. The best way to determine the correct length of this finger is to turn the machine around where the needles are up in the heel and toe and lift the latch right even with the finger. If the

for Cotton

To retain all the desirable qualities of your cotton fibres and release all the impurities, and thereby secure the best prices for your cotton yarn, knitwear or hosiery, use these Laurel Brand Products—

Laurel Textile Oil
Laurel Cotton Lubricants
Olive Savon Oils
Laurel Soluble Pine Oils
Laurel Cream Softener WN
Laurel SXG Oil
Hydrosol
Ruxite for softening

Solve all your Treating Problems with Laurel Brand

Laurel Soap Mfg. Co.
INCORPORATED
WM. H. BERTOLET & SONS
2600 E. Tioga St. Philadelphia

Textile Treatment Specialists since 1909

Improved boil off reduces needle breakage!

When one large mill making light and heavy weight underwear recently adopted Oakite in its boil off formula, goods were left with a whiter, softer finish than ever before.

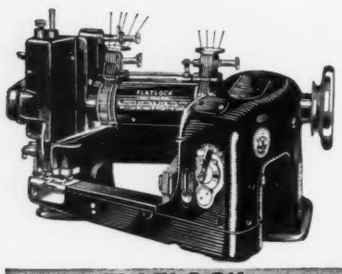
The increased softness of the goods helped greatly in cutting down the breakage of needles, which so often accompanies the sewing of harsh fabrics. Costs were less than when their previous formula was used; the boiling off time was reduced 35%.

Let Oakite inject into your wet finishing operations the increased but milder detergent action which assures a soft, better finished product. Write for details on your particular work. No obligation.

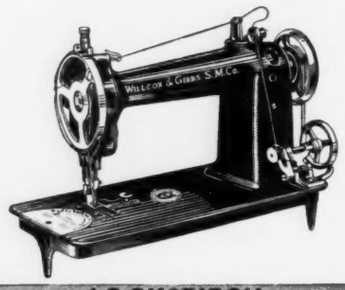
Manufactured only by
OAKITE PRODUCTS, INC., 26C Thames St., NEW YORK

OAKITE
Industrial Cleaning Materials and Methods

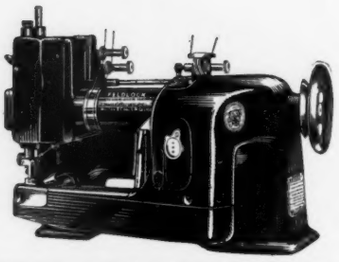
QUALITY MACHINES
THAT INSURE
QUALITY PRODUCTION



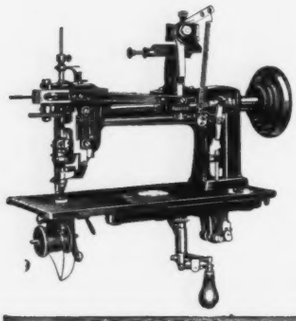
FLATLOCK



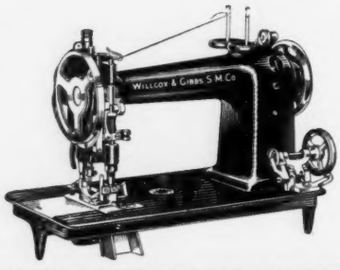
LOCKSTITCH



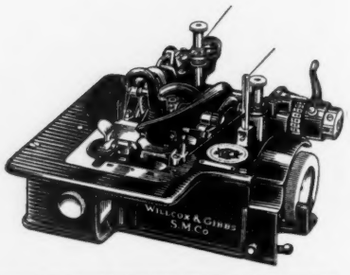
FELDLOCK



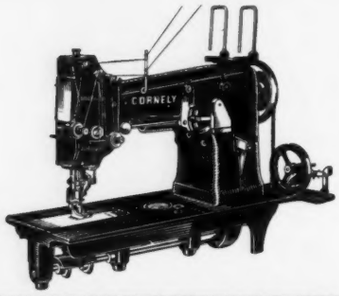
CORNELY



LOCKSTITCH TRIMMER & BINDER



OVERLOCK



TWO-NEEDLE HEMSTITCH

WILLCOX & GIBBS
SEWING MACHINE COMPANY
658 Broadway · New York, N. Y., U. S. A.

New Willcox & Gibbs Machines and Parts can be purchased only from the company's offices

end of the latch touches the end of the finger, this will cause the latch to tip or close while running in the heel or toe. Also, the latch ring being adjusted too high or too low will cause the same trouble by the latches touching the built-up part of the mouthpiece in the corner, as in the sketch.

Skips and loops are sometimes caused by the same things which have just been mentioned, but are more commonly caused by the heel yarn finger being too rough or sharp on the bottom. The yarn finger should be penciled out with a penciled emery until a round appearance is produced on the bottom, and then thoroughly polished with an emery cord. This trouble can also be caused by a crack in the inside of the yarn lever which cannot be detected simply by looking at it from the outside. The trouble can also be caused from a rough mouthpiece which one could not see by looking at it with the natural eye. However, the burrs are there and if polished *clear* with fine emery cloth, they will be removed. Another thing that would cause this trouble would be the latch ring being too low, causing the yarn to ride under the sinkers when it is making the heel and toe. The yarn should always come out on the last needle that knits, if it does not it will cause no end of trouble with skips in the heel and toe.

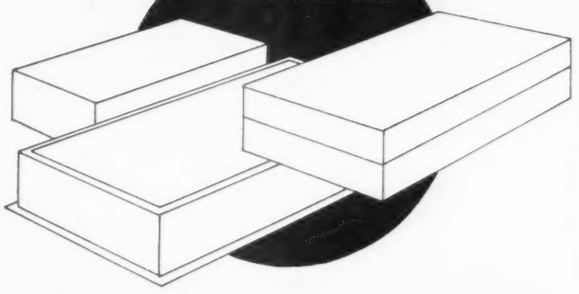
With regard to cuts in the fabric, a Banner machine should always have the stitch cams gauged as to height by a regular Hemphill stitch cam gauge, using a 36 gauge always on a split foot; and using on a plain machine the same gauge as the gauge of the machine. The reason for this is: A fixer will come along and see a hole or cut in the gore. The first thing he will look for is to see if the stitch is even. If the stitch is even he next looks for a bad needle or a bad sinker. The reason that the cams should be gauged is that one can get an even stitch with the cams uneven, and this is accompl'shed in a very unsatisfactory manner and causes considerable trouble to the fixer who is not an expert. One could have the front stitch cams high and the back stitch cams low, with the front sinker cams in too far and the back sinkers not in far enough. This would give an even fabric, but as explained, would cause all kinds of trouble such as cuts, etc. Another trouble which almost any fixer would know is using two different makes of needles which are not uniform in length.

As to tight and loose bands, about the only thing that could cause tight and loose bands to run horizontally one or two inches apart would be the yarn pulling unevenly from the bobbin or cone. However, if there is too much play in the ring gear this will allow the cylinder to play up and down, causing a tight and loose stitch. This is especially noticeable just after the machine is oiled. The oil working in under the gear causes the ring gear to rise, making a loose stitch, and when the oil works out again the gear will drop back to its normal position thus causing a tight stitch.

As to vertical and loose bands, the only thing that can cause vertical streaks are: tight and loose needles; tight and loose sinkers; different makes of needles and sinkers; and cylinder walls bent down low where the fixer cannot see it without removing the cylinder.

CONTRIBUTOR No. 6137.

Better Packing
FOR TEXTILES



Pack your textile product in paper boxes with personality . . . styled to fit today's markets . . . printed to give your trade mark added effectiveness—in any desired combination of colors. Five strategically located Southern points to give you quick service and low freight rates. Write today to our nearest plant for samples and prices.

OLD DOMINION BOX COMPANY, INC.,
Lynchburg, Va.
Winston-Salem, N. C. Burlington, N. C. Ashboro, N. C
Charlotte, N. C.

quality OLD DOMINION Paper Boxes

HYDROXY
(REG. U. S. PAT. OFF.)
IS YOUR SAFEGUARD
OF SATISFACTION
IN TEXTILE OILS

Do not be misled by claims for inferior oils whose sole appeal is "cheapness."

Hydroxy Art Silk Coning and Winding Oils *(Reg. U. S. Pat. Off.)*—to meet YOUR conditions.

Hydroxy Art Silk Boil Off Oil *(Reg. U. S. Pat. Off.)*—for boiling out Coning and Winding Oils before dyeing.

"Solivol B" *(Reg. U. S. Pat. Off.)*—for softening Bleached and Dyed Rayon.

Hydroxy Three Fibre Boil Off Oil *(Reg. U. S. Pat. Off.)*—Degums Pure Silk and Boils out Coning and Winding Oils at the same time.

FREE *Have you received your copy of "Popular Industrial Chemistry" by James A. Branegan, Pres. Kali Mfg. Co.? Sent free on request.*

The KALI Mfg. Co.
Manufacturing Chemists
1410 N. Front Street, Phila., Pa.

SOFT AND WHITE

B&C

MERCERIZED YARN *for* UNDERWEAR

These B & C Mercerized Yarns will set your product distinctly and favorably apart from your competitor's efforts. Being extremely soft and white, B & C Mercerized Yarns provide the appeal that goes with unusual-quality garments.

These yarns are also richly endowed with the advantages of B & C uniformity and strength. Their extensive usage demonstrates over and over again that the American public wants a sound and beautiful quality in undergarments.

Thus, to a growing number of manufacturers of knitted wear B & C Soft and White Mercerized Yarns are a basic policy—not merely a choice of processed yarns.

Call for a B & C representative to discuss further with you the advantages and possibilities of these unusual yarns.

BOGER & CRAWFORD, PHILADELPHIA, PA.

French Campbell Jr. & Co.
417 Provident Bldg.,
Chattanooga, Tenn.

Mr. Wm. R. Rietheimer,
222 W. Adams Street,
Chicago, Ill.

Mr. Donald R. Jonas,
Lincolnton, N. C.

The KNIT GOODS MARKETS

ALTHOUGH the hosiery primary markets assumed a quieter aspect as summer advanced, as ordinarily is the case, and notwithstanding some disturbance of trader sentiment as a result of what was viewed as a drastic reduction in the price of one number of a given manufacturer, it appeared that demand for consumption was sufficient to keep a great part of the full-fashioned industry well engaged while stocks in mills were being reduced.

The two major sensations of the season as related to distribution of women's silk full-fashioned stockings seem to have been initiated by the Berkshire Knitting Mills in first announcing it would no longer stamp its irregulars as such, and subsequently offering a 42-gauge stocking for $4 a dozen. As to discontinuing the designation of hosiery irregulars by a tell-tale marking, the Berkshire realized it had clung too long to the "noble experiment" of trying to get adequate prices for off-grade stockings distinguished from first quality for consumer protection, and unloaded an accumulation that probably never would have existed had all manufacturers followed the company's example. That was a jolt for some mills which were believed to be giving irregulars a distinguishing mark, but were not doing so.

The experience of the Berkshire with irregulars of silk full-fashioned stockings is regarded by many manufacturers as an acknowledgement that buyers have won; that it is up to distributors to enlighten women as to the grade of stocking they are buying, as henceforth, it is believed, few mills will apply the distinguishing marks. It is noted that frequently when a department store is running a specially low price sale stockings are described as "irregulars" but the imperfections "so slight that they are not perceptible except on close inspection, and do not affect the wearing quality." Women buy such stockings on the word of the store. And usually they are safe in doing so, for, like as not, the term "irregular" is used in order that women will not expect the sale price to be continued regularly.

Mills Cut Curtailment Period Short In Spite of Disturbances Over Price Changes.

A leading manufacturer of high grade stockings —high grade in their respective classifications— states "we gave up long ago using a mark to distinguish our irregulars from our firsts. Buyers would not pay us value for hosiery so marked. Our packing distinguishes the first and second and lower qualities one from the other, as every buyer knows. When the stockings are taken out of the carton, our description does not follow, if the dealer withholds the information. Manufacturers should not be expected to supply a guarantee of dealer honesty."

Necessarily there was consternation in a large part of the wholesale distributing trade when the Berkshire Knitting Mills announced a price of $4 a dozen for 42-gauge stockings described as of "81 per cent Japan silk, 18 turns to the inch, for dullness; five-thread welt and six-thread splicing." Knitted of four thread silk and carrying a picot, the stocking was made with a cotton re-inforced welt.

Around the middle of July, several weeks after the $4 stocking made its appearance in the wholesale trade, the Berkshire was reported having increased its operating schedule to full time. It was understood a considerable volume of business had been taken, whether in the $4 number or in the company's general line. One department store buyer admits having increased his initial order for 250 dozens to 1,000 dozens for the $4's.

Plant operation in the northern territory generally more particularly in Philadelphia and up through the State seems to have been not much affected by the June-July price movement, for mills which had been on full and overtime schedules, maintained, mostly, these schedules, and it appeared from casual statements by manufacturers that more full-fashioned stockings were being turned off in July than in May, when there was an indicated curtailment of almost nine per cent in production of women's silk full-fashioned, making comparison of reports from identical manufacturers for the corresponding month of last year. This compares with a May curtailment of around 20 per cent in production of women's silk seamless and approximately 15 per cent decline in production of all classes as a whole.

Return to Plain Hose Causes Spurt in Demand.

Prior to the holiday, many of the leading mills in Philadelphia and nearby areas let it be understood they would devote two to three weeks to inventorying and a protracted observance of the Fourth. It was noted that hardly any of these plants were idle more than a week, and that most of them were producing more hosiery than in June. July proved not the sluggish period that had been looked for. Reports around the middle of July from manufacturers generally, North and South, indicated approximate satisfaction with volume of business, complaint being lodged mainly against prices.

Any increase in output last month was bound to raise the question as to whether it was justified, since statistics for May showed a decline in unfilled orders, in comparison with May of the previous year. In spite of the heavy drop in unfilled orders and in net shipments, stocks reported in mills at the end of May were but slightly less than those at the end of the corresponding month in 1931.

Some analysts explain that indicated July plant activity was due to demand for plain knit staples, meshes and lace stockings having been abandoned by the consuming public for the time. Some of these analysts go on to suggest that a considerable part of

the accumulated stocks in mills comprises mesh and lace numbers. Whatever may be offered in explanation, hosiery production is being maintained at a stage surprising to numbers of mill men contemplating the idle and part-idle factories.

Finds Needles Missing in "45-Gauge" Hosiery.

It was expected $4 was only a temporary price of Berkshire, to be withdrawn probably in August. It met the quotations of scattered unidentified mills trading with dealers not too exacting in their descriptions. One effect was, however, to establish a $4 price for 42-gauge stockings by such establishments as Charles Chipman's Sons Co., Inc., and Harrington & Waring. Several southern manufacturers who was asked last month whether they would meet the Berkshire price replied in letters that they would not decide until later. Meanwhile there was offered in abundance hosiery described as four-thread 45-gauge quoted $4.25 a dozen.

The buyer for a leading department store who maintains a laboratory for proving or disproving the claims of salesmen offering hosiery and underwear declares that of samples of hosiery from four mills which he tested, not one was 45-gauge, although offered as such. It is doubted among manufacturers whether the tests commonly applied by even the more cautious and exacting buyers are infallible, some insisting it is possible for any "clever" mechanician to "fool any buyer" when the difference in gauge amounts to only two needles per inch. Besides, it is pointed out, "what does the woman who wears the stockings care whether they are of one gauge or another, so long as they yield proper service and are satisfactory in all other respects?" Gauge is a talking point for retailers, and affords as much opportunity for deception in the better stores as do unidentified irregulars in many establishments, in the opinion of numbers of practical hosiers.

Declares 42 the More Practical Gauge.

For all practical purposes, 42-gauge is the preference of some of the manufacturers using but one type of machine for three distinctive hosiery numbers. As demonstrated by an eastern mill management, a very acceptable two-thread stocking is produced on a 42-gauge machine, and an eight thread silk medium service weight and chiffons from the same equipment are, and for some time have been, selling in numbers of stores handling the better grade goods. The 42- is clung to as the more flexible machine. For example, it is instanced, so few two-thread stockings of finer than 48-gauge are being sold that, it is maintained, all that the average mill might require for a balanced range of numbers can be gotten off of 42-gauge. As has been held, there seems an no urgent need for at least two of the intermediate gauges. An eastern Pennsylvania mill selling to the retail trade is operating its 42-gauge machines five days a week and its 45-s two days a week.

South in Favorable Position with 42 Gauge.

Next to 42-gauge machines, demand for second hand equipment appears to be running to 39-. A large mill offering its equipment for sale demurs at the low prices buyers are willing to pay, and it is stated that if any of the machines are withdrawn from sale because of inadequate prices being obtainable it will be the 39s. "We are not so anxious to sell the 39-gauge as the 42- and 45-," it was stated by a representative of the owners. The 39s obviously are being used extensively in the production of stockings for the very low price brackets. A line with cotton feet and hem and which might be questionable as to the number of courses omitted, is quoted $3.50 maximum for the 39-cent bracket, which probably ought not have a place in the range of full-fashioned hosiery prices.

Most of the 39-gauge machines are said by manufacturers to be in mills in the older full-fashioned knitting centers—Philadelphia, for example—while the older mills in Reading and in the New York- New Jersey field house a great many. Relatively few 39s are believed to be in operation in southern mills, where, it is realized, opportunity for producing 42-gauge for successfully competing with 39-gauge is favorable.

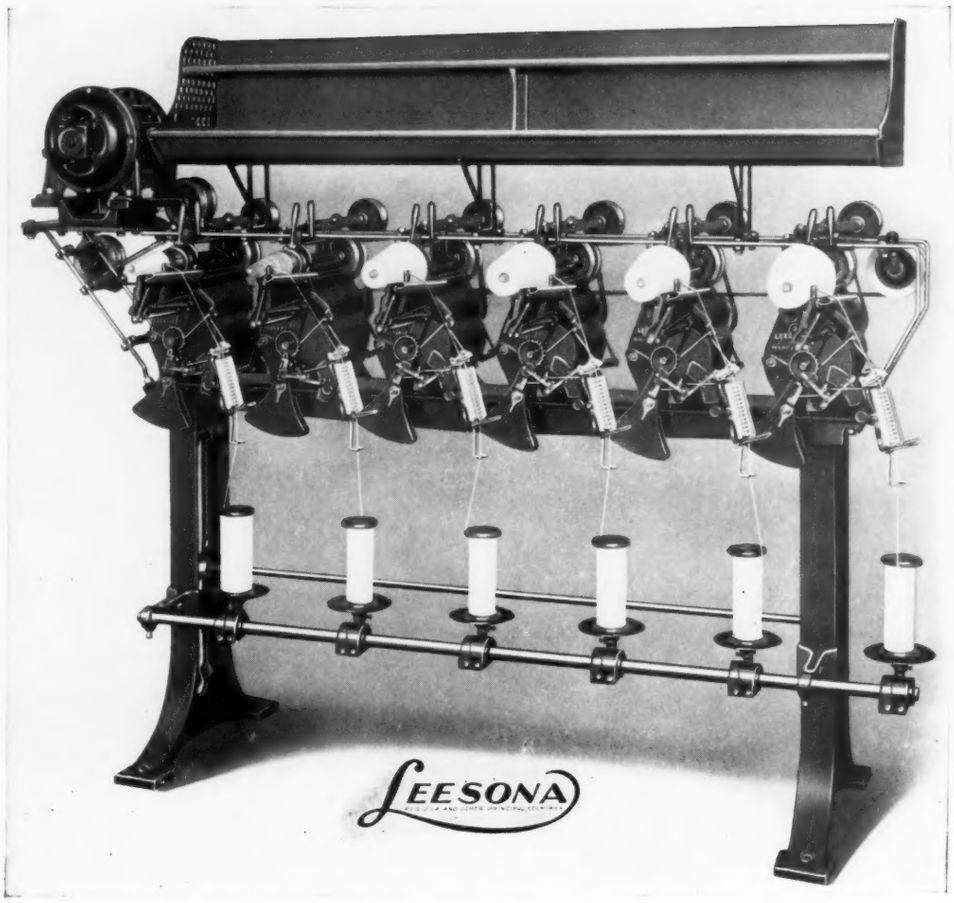
Haste to Meet Reduced Quotations Leaves Some Mills in a Quandary.

Necessarily the price of $4 a dozen for 42-gauge answering the description of the Berkshire number which some weeks ago was offered at that figure, has had the effect of lessening demand for 39-gauge with cotton hem and feet, buyers regarding the difference of but 50 cents a dozen too narrow to influence sales of the coarser gauge. A manufacturer who brought out a 39-gauge, picot, silk to top and plaited feet and silk splicing, quotes $4, presenting it as a competitor of 42-gauge at the same price. It has been pronounced a very good stocking, and as it is made with the narrow heel, cradle foot and embraces all the talking points, some buyers say they would give it preference as against much of the 42-gauge.

None of the staples is fetching adequate prices for either manufacturer or retailer. Competition among the small stores and between the small and the department stores has resulted in prices which do not show the usual arbitrary mark-up for dealers. Some of the mills which dropped their prices to lower brackets during the fitful days of the decline are left in a quandary. Except at sacrifice of quality, they cannot well compete with some of the recent lows, nor can they advance their prices with assurance the trade would accept. The lesson, it is pointed out, is, do not be in too much hurry about downward changes in prices simply because some rival has lowered his quotations. A Georgia manufacturer who pondered the question of revision after a price range of 55 cents to 69 cents seemed to be popular among a large element of buyers for the trade is reported having decided to stand firm on quality and only a slight reduction from his list.

Better Stocking Sales Hold Up Well.

According to the hosiery department managers in some of the representative department stores, women who had been accustomed to the use of stan-



No. 150 MACHINE

This machine is built on the model of the No. 50 Machine, but with heavier fittings and for a wider range of work.

It is especially adapted for handling ply yarns.

All working parts are built for long service and durability.

UNIVERSAL WINDING COMPANY
BOSTON

333

UNIVERSAL WINDERS

With marked trends towards **Quality**

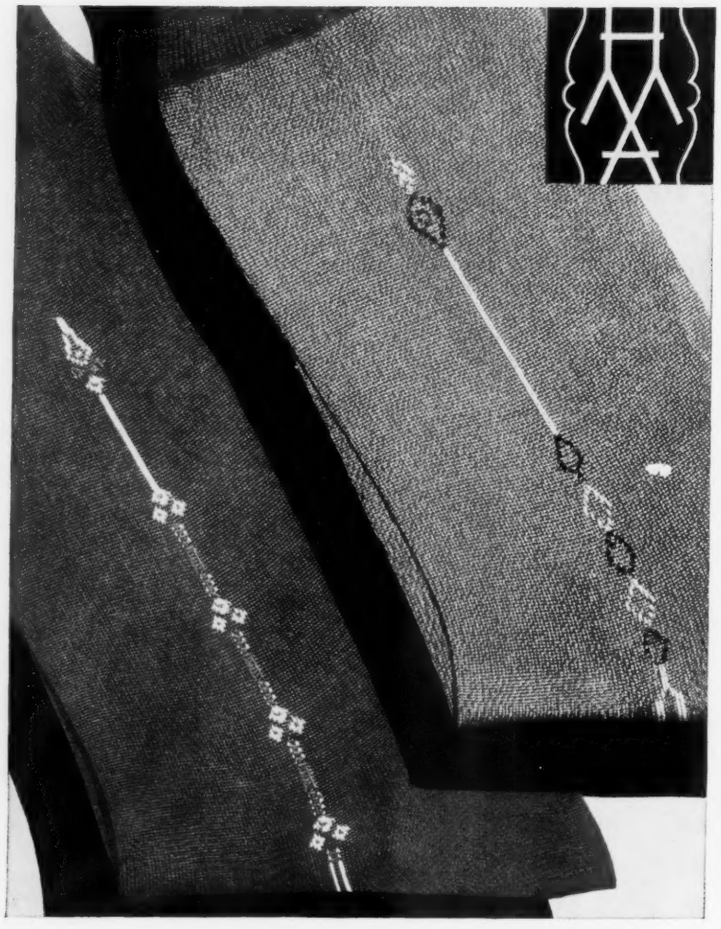
BANNER WRAP MACHINES

In Wilkes' Hosiery Mills are on full production schedule

Prices, contend the Wilkes' Hosiery Mills, are determined by fluctuating material markets, but Quality, they say, is the prerogative of the individual manufacturer. The Wilkes' Hosiery Mills, North Wilkesboro, N. C., largest manufacturers of Genuine Banner Wrap Stripe Hosiery selling wholesalers exclusively, have equipped for quality production with quality machines—BANNERS.

With an inflexible policy in quality in manufacturing, Wilkes' Hosiery Mills and their market-wise sales organization, Hanes Associated Mills, have succeeded in maintaining for the past six months a *full production schedule* on one of the largest installations of Banner Wrap Stripe Machines in the world.

Manufacturers interested in the rapidly returning Quality Market should investigate the latest developments in Banner Wrap Stripe Machines.



2 numbers from the line of 17 popular styles made by the Wilkes' Hosiery Mills and sold through Hanes Associated Mills, 271 Church St., New York City*

*POPULAR WITH CONSUMERS, TOO.

HEMPHILL COMPANY
PAWTUCKET, R. I.
General Sales Office and Machine Exhibit
93 Worth St., New York

Philadelphia 6822 No. Gratz St. | Chattanooga James Bldg. | High Point, N. C. Commercial Bank Bldg.

NEEDLES, SINKERS, JACKS, LINKS AND PATTERN SUPPLIES
IMMEDIATELY AVAILABLE AT ALL BANNER BRANCH OFFICES.

QUITEX
SPUN RAYON

Yarn is one of the life bloods of the textile industry — but sales must be stimulated with the unusual—new yarns must be introduced. The unusual appearance of Quitex Spun Rayon, as well as its practicability, have caused it to be extensively used in those mills manufacturing smart textiles for the modern-minded trade.

You will like the dull lustre and the unusual strength of Quitex. Send for samples.

Quissett Mill
New Bedford, Mass.

Wm. M. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent.

QUISSETT MEANS QUALITY

dard good grades of hosiery are not departing from that custom. Necessarily they are sticklers for comparatively low prices, and it has been noted that when occasionally a sensationally low price is advertised or appears on a pair of stockings, customers are inclined to be skeptical of the quality. The attitude of women toward the kinds of stockings they were accustomed to wear when prices were easily twice as high is indicated, said a department manager, by the fact "that our sales of $1 and $1.25 hosiery hold up well, showing our trade is not being swerved from quality by such prices as 55 and 69 cents."

Strawbridge & Clothier displayed chiffon and medium service silk stockings priced for a sale 35 cents a pair, which was said to be the lowest price for silk full-fashioned ever appearing in a Philadelphia department store. They are described only as representing "odd lots, regularly 75 cents and one dollar," 35 being a "clearance price." At the same time the store displayed McCallum, Phoenix, Kayser and Granite brands for a total of over 14,000 pairs, at 55 to 59 cents a pair.

The pricing down of branded stockings that are nationally known through advertising to consumers is believed by many manufacturers to have been an outstading incident in the protracted downward adjustment of prices. Snellenburg's advertised 15,000 pairs of Silver Star brand at 59 cents, including a package of Lux with every pair.

Taking staple hosiery of quality out of a class that is difficult to distinguish from strictly price goods is a problem which probably every manufacturer of the former type has been trying for some time to solve. Patents covering lace have not supplied a solution. Yet in the opinion of some hosiers, mills equipped to knit on patent protected lace hems will be in a strong position for the fall trade.

Several manufacturers have experimented with white picots, for stockings of all colors. They were shown not so long ago on ingrain silk stockings, but it is said to be difficult to do white picoting on dipdyed, for the reason the picot must be so treated as to be resistant to dyeing, and this is said by experimenters to be unsatisfactory, causing the production of a large per cent of irregulars. This contributes to higher cost of first grade, of course, and as any treatment calculated to increase price would not promote selling, the white picot for dipdyed silk hosiery seems likely to be pigeon-holed.

The one definitely indicated departure from present modes seems to be a revival of clocks for women's stockings intended for the higher price brackets. Several of the leading shops have declared for Paris clocks, and it is understood the McCallum company is about ready to show probably a half dozen openwork clock for fall numbers, for following in the novelty path.

Both plain and novelty lines were being offered around the middle of July by a manufacturer in New Jersey, for deliveries for the Christmas holiday selling. This was believed to be the first offering for that period.

If the non-run type of stockings controlled by the

STANDARD-COOSA-THATCHER

Durene

Mesh, Fancy Stitch, or Plain —

STANDARD-COOSA-THATCHER Durene will do a better job for you, —because uniformity of quality is a fundamental of Standard-Coosa-Thatcher Durene . . .

- Evenness of Thread
- Accuracy of Count
- in well-wound packages

Samples on Request

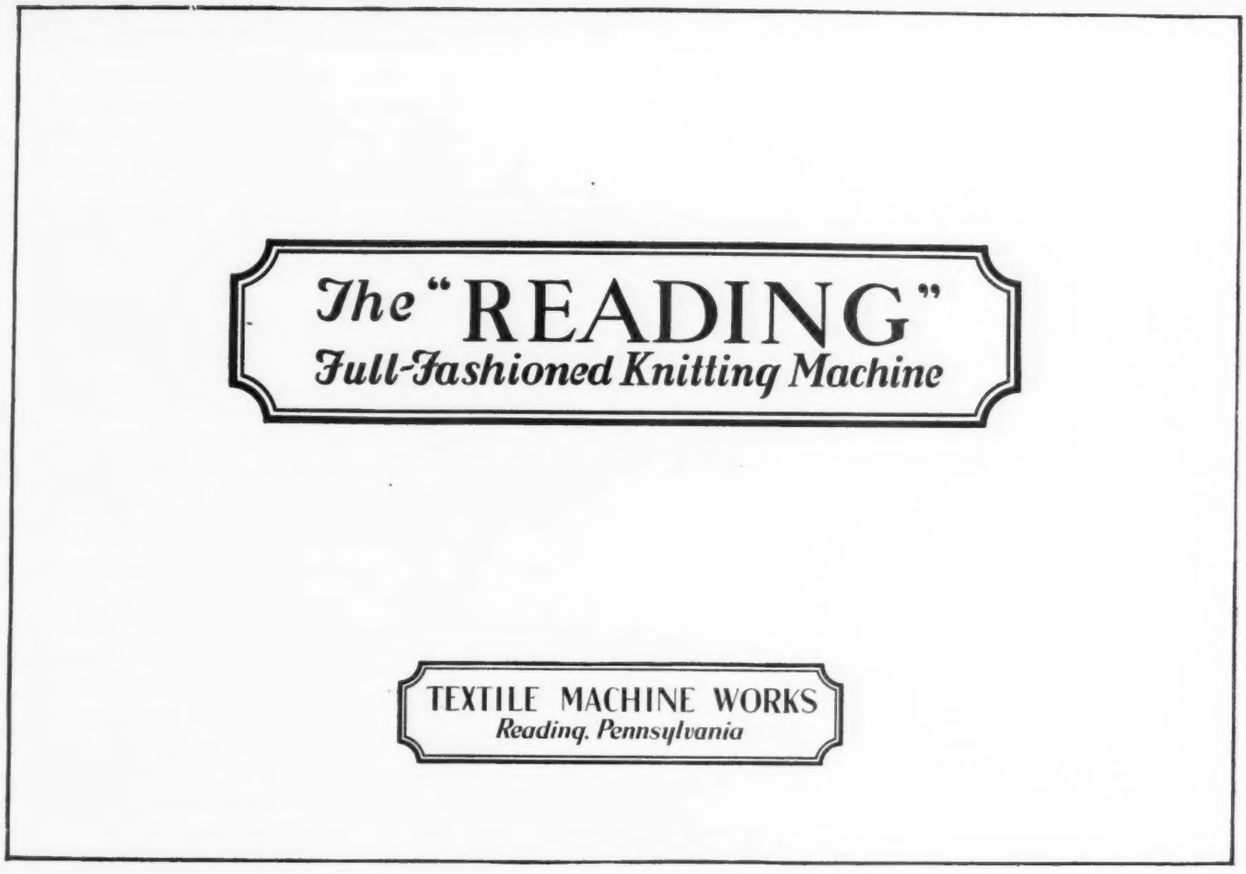
STANDARD-COOSA-THATCHER COMPANY

CHATTANOOGA, TENN.

Executive and Sales Offices: Lafayette Building, Philadelphia, Pa.

Branch Offices:— 456 Fourth Ave. New York; Johnston Bldg. Charlotte, N. C.; 940 Merchandise Mart Chicago, Ill.

Canadian Representatives: Wm. B. Stewart & Sons, Ltd., Toronto-Montreal



Textile Patents Corporation proves the success claimed for it by the Textile Machine Works, which has perfected the equipment for producing it; the Berkshire Knitting Mills and the Apex Hosiery Co.—then there may be a fair volume of non-competitive business by the mills mentioned and those acquiring license to produce under the Schwartz patent. It is claimed by persons speaking for Graenze patent interests that Gotham Silk Hosiery Co. has exercised an option to take over the Graenze patent and the Philadelphia mill of Miller Brothers.

The Schwartz patent group was to have been marketing non-run hosiery by the middle of June. It may be the middle of August before this type of stocking will be offered for sale, and equally late when the Graenze group comes out in a commercial way. Both groups have been busily engaged for weeks affecting changes in the machinery by which the fabric is said to be improved, in appearance at least. Sharp rivalry is expected to develop between the two when once both are in the market offering non-run hosiery.

The non-run type of stocking produced under a German patent, for which application was made in the United States patent office a few weeks ago, is said to neither infringe the Schwartz patent as to fabric or machine, nor be an improvement, and therefore is said by a Textile Patents Corporation representative to call for no change in the latter company's plans for going ahead with production some time during summer. Whether it would be ready to show the line at the Berkshire clinic in the first week in August was not definitely stated when the question was asked.

"Run resist" and similar terms have been exploited for so long and so intensively by some concerns that, it is suggested, smart shoppers may at first look with skepticism on the new stocking said to be so constructed that dealers would be safe in guaranteeing it immune from runners.

Gossip probably originating among operatives in the four factories employing the single unit by which a full-fashioned stocking is knitted complete in one operation, eliminating toppers as one of the major items in economic production, is heard in the trade, and it seems favorable to the device. But there is found difficulty in awakening interest among manufacturers, notwithstanding they admit the practicability of the single unit machine. In the first place, it is pointed out, it would be difficult to find buyers for used leggers and footers, and these would have to be sold before installation of any type of new equipment would receive much consideration.

More Outlets for Women's Hosiery.

"I believe the single unit machine would prove an economy in the knitting of stockings," said a manufacturer, "but if we were to put it in, substituting for leggers and footers, buyers would at once expect reduction in price equal to the reduction in operating cost, and we would not get enough out of it to pay for the cost of making the change. When demand for hosiery exceeds output it will be time to install single unit equipment," says the manufacturer friendly to the device as a saving in cost of manufacture.

There is noted no little dissatisfaction in hosiery trade circles with reports of the numbers of the better class department stores that their hosiery sales have fallen back this summer. Such statements are out of accord with the demand on manufacturers and may be accounted for by the fact that more establishments are selling stockings.

Some of the large stores which made "economize" their slogan under direction of merchandise managers "let out" some of their higher salaried hosiery department employees, or effected changes in personnel and remuneration which caused some of these employees to utilize their knowledge of the stores' clientele for engaging in business for themselves, usually tying up with some well established shop. A dozen or more such outlets for women's hosiery have been established in Philadelphia within a few months. Severing a connection of 30 years with a department store, a former buyer of women's hosiery, quite recently opened a hosiery section in a millinery and dress shop. She is specializing in guaranteed 45-gauge stockings at 55 cents a pair, two pairs for one dollar.

The establishing of sections or departments for hosiery necessarily may be feasible when it would be impracticable, from the standpoint of economic operation, to set up a small store. It all helps to sell hosiery, and these little departments, or sections, are rated a profitable outlet for small mills willing to take upon themselves the additional trouble incident to handling many small accounts. Shops of this character are believed to fare better than retail stores operated by manufacturers.

Announcement was made only a comparatively few months ago that the Chipman Knitting Mills, Easton, Pa., where the company operates a large plant, had opened a retail hosiery shop. Announcement appeared last month that the company had discontinued the store and appointed a women's ready-to-wear shop in Easton as retail distributor of Chipman hosiery for women. The Dexdale Knitting Mills, Lansdale, Pa., several years ago discontinued its retail shop in Philadelphia, and the retail store established some years ago by the Artcraft Silk Hosiery Mills was discontinued after a brief career.

See Stronger Situation in Seamless Hosiery Due to Greater Distribution by Jobbers.

While there is reported a fair amount of new installation of machines for knitting seamless hosiery, there is a sustained interest in used equipment, for men's and children's lines. Much of the machinery changing hands is bought for experimenting with new numbers showing some slight deviations from staples in construction.

The reductions in price of rayon yarn are said by primary market operators to have apparently affected the markets for men's rayon half-hose adversely. Other mixtures of rayon make no better showing, however, and the one-time fashionable silk socks seem to have sustained a further setback. broadly speaking, it would appear, from statements of mill agents, that the markets for men's and children's hosiery are following the course of those for women's. Accepting this view, and taking into consideration the prospect of requirements as usual for fall and winter, these divisions may be expected to show materially more activity. Certain of the few Pennsylvania mills specializing in novelty stockings for misses and children have been in overtime operation for some months.

Some interests hold there is a stronger situation for manufacturers in men's, misses' and children's lines than in women's, both full-fashioned and seamless, for the reason they are distributed more generally by jobbers than are women's, this notwithstanding the 10 cent price of some chain stores.

Reductions in prices for men's half-hose have not increased sales in the aggregate, but, according to a statement by a person speaking for the Interwoven mills, more of the sales are of the lower price numbers, as indicated in the lead by 35-cents-a-pair socks, whereas a year or more ago the better seller was a dollar number.

Rayon hosiery led full-fashioned in the exports of women's, in May, the last month for which statistics have been received, shipments being 14,901 dozens of rayon, valued at $31,207, and 14,603 dozens of silk full-fashioned, of a value of $102,646. Cotton hosiery exports, all classes, totaled 69,322 dozens, invoiced at $88,754. This compares with total exports of rayon, 29,555 dozens, $51,520; silk, 19,366 dozens, $119,254. Exports of women's seamless silk declined to 1233 dozens.

Underwear jobbers have returned to the markets for heavy weights, following manufacturers' coming from hiding on July 15, with prices that are intended to hold, as a minimum. Some mill men look for slight advances in step with strength developed by cotton in the first half of July, but are willing to sell their customers up for their full fall requirements at current quotations.

Jobbers are expected to operate very conservatively in men's heavies. The credit situation seems likely to hold commitments down to samples and a few cases for meeting possible unexpected calls when road salesmen begin their tour of the trade. "We will ship only a small per cent of our trade of a year ago," said the underwear department manager for a jobbing house that is nationally known. "Retailers on our books would buy a great deal more than we would be willing to ship them. We shall not place any very heavy orders for a time," he added.

Buyers for jobbing houses who it is evident will proceed ultra-cautiously with contracting, say they look for virtually all to place their initial orders by the middle of August, but, some say, their orders in October will be likely to exceed those placed in any previous month, the indicated intention being to defer until as late as possible, meanwhile making a complete survey of the retailer credit situation.

Aside from the drift to light weights, economic conditions, it is held in the trade, make it a reasonable presumption that summer lines will further displace heavies, and that when the latter do start moving, the 12-pound union suit will be found a leading seller, the lighter weight being regarded as better adapted to modern winter temperatures and attractive as an economic expediency.

AVONDALE MILLS

Sycamore, Ala. — Sylacauga, Ala.

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

Selling Agents:

WATERMAN, CURRIER & CO.
INCORPORATED

BOSTON CHARLOTTE NEW YORK
PHILADELPHIA READING

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.
You get the length, lustre, *feel* that the goods should have.
Our specially finished boards are highly recommended for silk and chiffon hosiery.
We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SONS CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.

SILK HOSIERY FINISHES

BROSCO DULL FINISH-FINISHING COMPOUND S. P.

BROSCO SCROOP OIL

Can be used alone or in conjunction with one another to produce any desired feel and finish.
Does not shrink or tighten up the fabrics.

SCHOLLER BROTHERS, INC.
Amber & Westmoreland Streets
Philadelphia, Penna. Since 1907

SCHOLLER BROTHERS, LTD.
In Canada St. Catharines, Ontario Since 1927

Weimar Bros.

Phone Connections
Works: 2046-48 Amber Street
PHILADELPHIA, PA.

MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

ACME BALE TIE BAND

Stocks warehoused at Spartanburg and Greenville, S. C. and addresses listed below.

ACME STEEL COMPANY
General Offices: 2840 Archer Avenue, Chicago, Ill.
ATLANTA, 603 Stewart Ave. S.W. BROOKLYN, 219 36th St. NEW ORLEANS, Masonic Temple Bldg.

The YARN MARKET

Philadelphia, Pa., July 16, 1932.

CONSTRUCTIVE action by the Philadelphia cotton yarn trade in July is reflected in more nearly adequate quotations for carded and combed yarns. Twice within two weeks, between the first and middle of the month, prices for coarse counts were advanced a half cent, the second rise placing 10s single carded on cones in the range 11½ to 12 cents. The adding of a cent to yarns broadened the spread between raw cotton and yarns, as possibly the first spontaneous step in many months toward an approach to a cotton parity, and eliminated in considerable extent the element of unsteadiness in values.

The advances in gray yarns were preceded by the announcement of the Aberfoyle Manufacturing Co., by around two weeks, that on July 15 the price of mercerized two-ply combed peeler yarns would be moved up, to a basis of 55 cents for 60s. This seemed to have prepared the minds of buyers for the less drastic but well thought out upward revisions in combed peeler and carded yarns, for, it was evidenced, following the press announcements of the advances, there was manifest a keener interest in deliveries running through the summer and the placing of contracts, some for the five months to January 1.

Spirited action in yarns did not materialize as a result of the prices having been moved to higher levels, but there was fair inquiry of substantial character from the start of the upward movement. Buying for consumption proceeded in more orderly fashion than characterized the situation in May and a large part of June. Buyers were, of course, resistant, as they still are, to the higher quotations, but resistance became less effective once spinners began giving the trade firm support. For a week to ten days, more offers to buy were declined than accepted, but all the while the position of yarns was improving from the standpoint of sellers, and reports from the goods trade were to the effect the treatment of yarn prices was having a stabilizing influence on the goods markets.

It could hardly have been expected that buyers would be stampeded into making commitments for yarns much in advance of needs, by the simple announcement that prices had been marked higher in one instance and would undergo like revision in another. They remained to be shown that sellers had increased prices in fact, instead of on paper only, and were protecting them. It was not overlooked, however, that competition for orders would be as keen as ever and that if there were cumbersome stocks of yarn, inside quotations might be a possibility. Yet there had been injected into the yarn markets a spirit of optimism that was lacking, obviously, so long as there was yarn to be had at less than the commonly accepted market.

Mercerized yarns continue to be variously quoted, one southern concern asking 43-4 cents for 60s 2-ply to July 15, when the quotation was increased by one cent, for 40s to 80s, putting the entire list on the basis of 44-5 for 60s. An independent, high grade mercerizer in the northern field states his price for 60s 2-ply is 49 cents, which he admits may have been shaded for quantity.

It was reported in the trade that offers of mercerized yarn at prices on the basis of 55 cents for 60s 2-ply were accompanied by a guarantee against a decline of the price. This was denied as to offers of Durene, by persons in the Durene association, who doubted that anyone had offered to guarantee price.

It was reported on July 14th that upward of 5,000,000 pounds of yarn had been sold up to that time during July by Durene Association members and two leading independent mercerizers; this announcement coming just prior to putting into effect an advance of 5 cents a pound for average grade combed peeler Durene cones, on the basis of 60s/2. The adjusted price list given follows:

16s–2	36	20s–2	37
24s–2	39	26s–2	39
28s–2	39½	30s–2	40
32s–2	40½	34s–2	41
36s–2	42	40s–2	45
45s–2	47	50s–2	49
55s–2	53	60s–2	55
70s–2	69	80s–2	80
90s–2	90	100s–2	1.15
110s–2	1.30	120s–2	1.50

For a time in July, weaving counts were in stronger call, relatively, than knitting cones. There were spurts in demand for underwear carded numbers that served to diversify the movement to mills. Additional interest in single combed peelers for knit underwear developed, notably when it became apparent that advances in prices for mercerized doubtless would carry peelers to higher levels. Without an upward revision in 2-ply combed peeler, it was logical to assume, any recession in volume of trading in mercerized probably would be followed by a return of unsettled prices—and this meant instability along the entire line.

While a considerable element, numerically, among buyers of yarns took note of the indicated stronger tone and made light commitments, it was admitted that the big flow of orders and contracts might not develop until the stronger consuming milsl come to market for anticipating needs for a brisker goods demand in the fall than existed at the time the price movement had its definite start.

Philadelphia prices published on June 16 follow:

Single Skeins.

4s to 8s	11		
10s	11½	12s	12
14s	12½	16s	13
20s	13½	24s	15
26s	16	30s	17

Single Warps

10s	12	12s	12½
14s	13	16s	13½
20s	13½		
26s	16	30s	17

2-Ply Skeins.

		8s	11½
10s	12	12s	12½
14s	13	16s	13½
20s	13½	24s	15½
26s	16½	30s	17½
40s	23 @24		

Two-Ply Warps

10s	12½	12s	13
14s	13½	16s	13
20s	13½ @14	24s	15½
26s	16½	30s	17½
40s	23 @24		

Frame Spun Carded Cones.

8s	11 @11½	10s	11½ @12
12s	12 @12½	14s	12½ @13
16s	13 @13½	18s	13½ @14
20s	13½ @14	22s	14 @14½
24s	15 @15½	26s	16 @16½
30s	17 @17½	40s	23 @24
30s double carded			20 @20½
30s tying-in			16½

Carpet Yarns.

8s and 9s white warp twist	11½
8s tinged tubes	10½
8s part waste	10

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	22	20s to 24s	25½
24s	25½	30s	27
40s	31	50s	33
60s	35	70s	46
80s	56		

Single Combed Peeler Yarns on Cones.

18s	19½ @20	24s	22½
30s	24½	36s	26
38s	28	40s	29
50s	32	60s	35

Tinged Insulating Yarns.

8s–1	10	8s–2	10
10s–1	10½	10s–2	10½
12s–1	11	12s–2	11
		20s–2	12½

This label

delivers a market *ready made*

BEFORE the label of Chardonize dull lustre yarn could help to sell merchandise, three things had to happen. 1. *Manufacturers* had to try Chardonize—test and re-test its time-saving smoothness on machines and its instant salability. 2. *Merchants* had to try Chardonize—to stock underwear, hosiery and dresses of Chardonize in small quantities, then wait until they were sure first sales would bring repeats. 3. *Women* had to try Chardonize—buy Chardonize-knit apparel, wear it and make sure its fashion-right "chalky" lustre would actually last as well as the sturdy merchandise itself.

These trials have been made over a period of years...and the Chardonize label stands today as an established symbol of nationwide acceptance. Thousands of retailers are finding it increasingly profitable to advertise "made of Chardonize" to many millions of women. Chardonize has *arrived*.

You cannot afford to experiment this year. You cannot afford *not* to share in the national, ready-made market earned for you by Chardonize.

COPYRIGHT 1932—TUBIZE CHATILLON CORPORATION

TUBIZE CHATILLON CORPORATION

2 PARK AVENUE, NEW YORK

Tubize BRAND

MAKERS OF VISCOSE, NITROCELLULOSE AND ACETATE YARNS

SPECIALLY SELECTED STARCHES DEXTRINES and GUMS for TEXTILE MANUFACTURERS

THIN BOILING STARCHES
EAGLE TWO STAR
FOXHEAD EAGLE THREE STAR
EAGLE FOUR STAR

THICK BOILING STARCHES
GLOBE PEARL BUFFALO
C. P. SPECIAL FAMOUS N.
PEERLESS

DEXTRINES
WHITE DARK CANARY
CANARY BRITISH GUM

These starches, dextrines and gums are manufactured by carefully controlled and standardized methods. Purity and uniformity are guaranteed. Economy and efficiency are attested by the constantly increasing number of users who are getting satisfactory results.

These are selected products available for the purposes and conditions of exacting textile manufacturers.

•

IMPORTANT

Our research department will be glad to furnish additional information regarding the types and uses of these and other products as applied to the special needs of the Textile Industry. Write to—

CORN PRODUCTS REFINING COMPANY

17 Battery Place • New York City

SOLVAY

TRADE MARK REG U S PAT. OFF.

PRODUCTS

SOLVAY products are sold on the basis of *actual* Alkali content.

SOLVAY 58% Soda Ash *contains* 58% of *actual* sodium oxide.

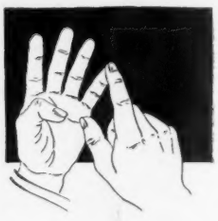
SOLVAY 76% Caustic Soda *contains* 76% of *actual* sodium oxide.

Specify SOLVAY—the standard of SODA since 1881.

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
61 BROADWAY NEW YORK

SOUTHERN DISTRIBUTORS:
Charles H. Stone, Charlotte, N. C.
Woodward Wight & Co., New Orleans, La.
J. T. Sudduth & Co., Birmingham, Ala.
Miller-Lenfestey Supply Co., Tampa, Miami and Jacksonville, Fla.
Burkart-Schier Chemical Co., Chattanooga, Tenn.
Paper Makers Chemical Corp., Atlanta, Ga.; Marrero, La.

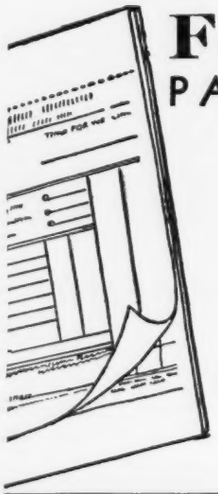
Recommended *for* YOUR PAYROLL DEPARTMENT



If you employ 25 or more workers!

The Patented

Four-in-One PAY ENVELOPE



It (1) carries the pay, (2) supplies employee's wage receipt, (3) is both a time and wage statement, (4) provides a thorough-going deduction statement.

May we send samples for you to discuss with your payroll department?

ATLANTA ENVELOPE CO.
505-7-9-11 Stewart Ave., S. W.
ATLANTA, GA.

4 in 1 - - 4 in 1 - - 4 in 1 - - 4 in 1

SOFT . . . . . .

before and after waterproofing!

Textile fabrics treated with our

ACETATE OF ALUMINA S-228 C

and

WATERPROOFING COMPOUND S-441 A

retain their soft, full handle after the waterproofing treatment.

These two products when added to the bath form a stable, water-resistant emulsion. The fabric is made waterproof by immersing in this one bath —a new efficient substitute for the old waterproofing treatment requiring two operations.

Tell us the kind of material which you are processing and we shall send you samples and specific directions for waterproofing.

"A CHEMICAL PRODUCT FOR EVERY PURPOSE"

JACQUES WOLF & CO.

Manufacturing Chemists and Importers,

PASSAIC, NEW JERSEY

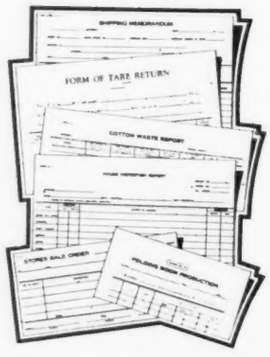
WAREHOUSES

PROVIDENCE, R. I.
UTICA, N. Y.
PHILADELPHIA, PA.
GREENVILLE, S. C.
CHICAGO, ILL.
CHATTANOOGA, TENN.

Take This SAVING

MILL and office form printing constitutes a sizeable item in the annual expense budget; one on which a little extra trouble is well justified in these times if a saving can be obtained.

Many Southern cotton mills are finding that our large printing plant can serve them better and more economically than most others. Particularly is this true when they can estimate their requirements for as much as six months ahead and allow us to print a number of forms at one time, shipping what is needed and holding the remainder in stock to be ordered out and invoiced from time to time. Savings of 25 to 30 per cent are not uncommon where this plan is adopted.



We shall be happy to furnish quotations on single forms or to show how much saving can be effected by entering into a contract on all printed form requirements for a six months period. No obligation, of course.

JACOBS GRAPHIC ARTS COMPANY
CLINTON___SOUTH CAROLINA

FIRST OF ALL ··· QUALITY

For **SATISFACTORY TEXTILE OPERATIONS**

GRASSELLI FORMIC ACID
90% Commercial

THE USE of Formic Acid in textile work is expanding with impressive rapidity. This is a highly significant fact. It means that the shrewdest operators, always alert to better methods, are giving Formic a trial, on a critical basis—and are then *continuing* to use it as a result of its performance. An investigation of its special merits will be found profitable. Write for any information you desire—we will be glad to lay the Formic facts before you.

Our Research Department may be of help in solving some of your problems. This service is available to you. Prompt shipment from any of our branches listed below.

FOUNDED 1839 GRASSELLI REG. U.S. PAT. OFF.

Other Grasselli Chemicals for Textile Manufacturers

Acetic Acid
Acetate of Soda
Acetate of Lead
Alums, U. S. P.
Aqua Ammonia
Barium Chloride
Bi-Chromate of Soda
Bi-Sulphate of Soda
Bi-Sulphite of Soda
Carbonate of Soda
Caustic Soda, Solid and Flake
Chloride of Lime
Chloride of Zinc
Epsom Salts
Glauber's Salt
Lactic Acid
Muriatic Acid
Nitric Acid
Oxalic Acid
Phosphate of Soda
Silicate of Soda
Sulphate of Alumina
Sulphate of Soda, Anhydrous
Sulphite of Soda
Sulphide of Soda
Sulphuric Acid
Tri-Sodium Phosphate

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND INCORPORATED OHIO
New York Office and Export Office: 350 Fifth Avenue
BRANCHES AND WAREHOUSES:
Albany Birmingham Boston Charlotte Chicago Cincinnati Detroit
Milwaukee New Haven New Orleans Philadelphia Pittsburgh St. Louis St. Paul Sodus, N. Y.
SAN FRANCISCO—576 Mission St. LOS ANGELES—2260 East 15th St.
Represented in Canada by CANADIAN INDUSTRIES, LTD., Heavy Chemicals Division—Montreal and Toronto

VICTOR MILL STARCH

The Weaver's Friend

It boils thin—it penetrates the warp—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free of gluten and other foreign matter it gives a bleach and finish to the goods that you can get from no other starch.

A trial order will convince you that VICTOR STARCH has no equal on the market.

THE KEEVER STARCH COMPANY, Columbus, Ohio

Southern Agent: MR. DANIEL H. WALLACE, Greenville, S. C.

If you are not already using VICTOR STARCH call on our representative for a demonstration at your convenience.

ADOLFF

Card Room Bobbins

COMPRESSED HARD PAPER

Slubbers—Intermediates—Speeders, with Inside Metal Protection. For long Satisfactory Service. True Running, do not Warp or Splinter. Do not absorb oil. Favored by Executives as well as Operatives.

Samples and Prices From

ADOLFF BOBBIN COMPANY

576 Davis Ave., Kearny, N. J.

Telephone: Kearny, 2-1044

ALL ABC PRODUCTS HAVE THIS MARK

Look For It

SPOOLS
TWISTERS
SPINNING
BOBBINS

SILK SPOOLS
COPS & QUILLS
PERFORATED
DYEING TUBES

FULL TIME OPERATION

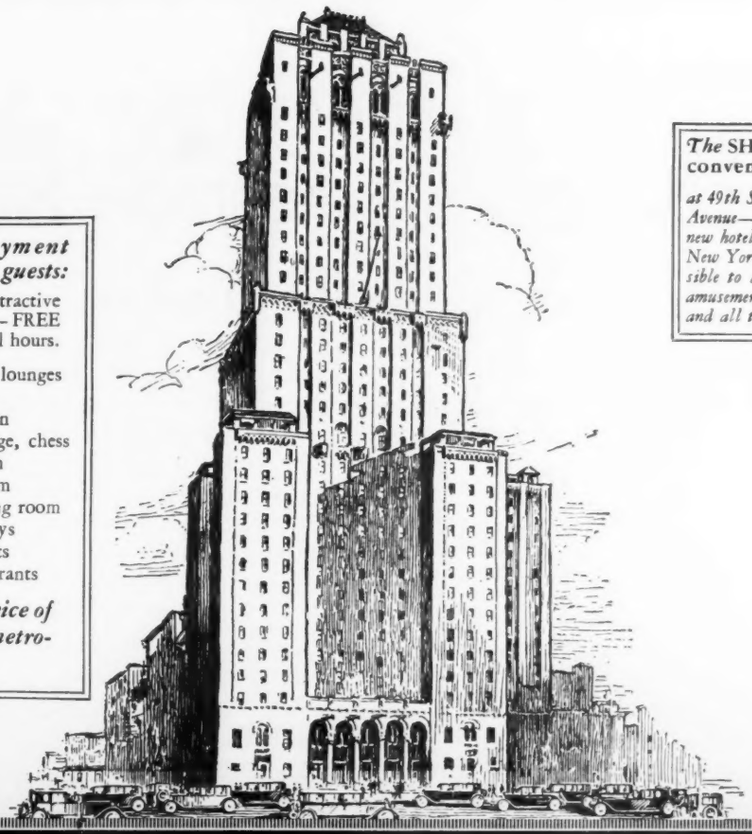
OUR foundry and machine shop are running full time and we have retained the skilled mechanics who have contributed in building Henderson's reputation for quality and precision.

We are now able to make immediate shipment on a great variety of textile repair parts and supplies.

GEARS
CASTINGS
PICKER REPAIR PARTS

HENDERSON FOUNDRY & MACHINE WORKS

HAMPTON, - GA.



For the enjoyment of* SHELTON *guests:

A large and attractive swimming pool — FREE to all guests at all hours.

Four comfortable lounges
Solarium
Roof Garden
Game rooms—bridge, chess
Gymnasium
Billiard room
Library and reading room
Bowling alleys
Squash courts
Excellent restaurants

and every service of a first class metropolitan hotel.

***The* SHELTON is most conveniently located**

at 49th Street and Lexington Avenue—in the center of the new hotel district of mid-town New York, and easily accessible to all smart shops, the amusement life of the city and all transportation.

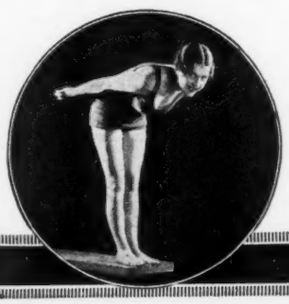
The SHELTON

New York's most unusual hotel

An outstanding favorite among visitors to the city. Combines the attractions of a private club and metropolitan hotel

A UNIQUE, club-like atmosphere most unusual to find in a metropolitan hotel. Where visitors to the city may enjoy themselves as much as though they were guests of a large private club. Yet in spite of its many extra attractions the room charges are no higher than you have to pay in other high class hotels where the most you can expect is the ordinary "room and bath." You'll like *The* SHELTON.

$2.50 to $3.50 a day for one person; $4.00 and $4.50 a day for two; larger accommodations always available. Special rates for those staying a month or more.



The SHELTON - - - New York
at 49th Street and Lexington Avenue

Ready for a plunge in *The* SHELTON'S famous swimming pool

The
SOUTHERN TEXTILE EXPOSITION NUMBER
to be published in October

THE Southern Textile Exposition, to be held at Greenville, S. C., October 17-22, is regularly the largest and best attended textile exposition held anywhere in the country. Coming once each two years, it gives the textile men throughout the South the opportunity of seeing in actual operation the latest textile machinery, the most modern general factory equipment and supplies.

SINCE the first textile exhibit in the South, the Southern Textile Exposition number of COTTON has been recognized as the most complete guide and source of information on the exhibits, the individuals attending, the equipment and products shown and other data of interest to the textile mill men—the most representative issue published to the Southern textile industry. This is a distinction of which COTTON is proud and will continue to warrant.

IN the coming October Southern Textile Exposition Number, the information on exhibits will be more complete than ever before. In addition, there will be a wealth of timely articles on textile manufacturing and merchandising.

THE October Show Issue will reach COTTON'S 9,800 readers previous to the Exposition. It will also be distributed in each booth at the exhibit hall and an ample supply will be on hand for the convenience of the mill men. Coming when the Southern textile industry is in the midst of its fall activity, the October Show Issue will be read carefully throughout the mills, by those attending the exposition and those who are unable to be present. It will stimulate interest in the latest equipment and processes, and place before the mills the advertisements of the majority of leading companies interested in serving them.

MANUFACTURERS who have not already reserved representative space for their advertisements should do so promptly. Copy can be furnished later.

COTTON

GRANT BLDG. ATLANTA, GA.

MINEROL

CONDITIONS COTTON FIBRES

MINEROL • Makes cotton fibres more supple and pliable; prevents friction and breakage through the mill thereby saving good cotton. This item alone will show profits above the cost of **MINEROL**

BRETON MINEROL PROCESS PATENTED

Improved equipment effects complete distribution of **MINEROL** • A cleaner card room assures a cleaner spinning room • A cleaner cotton mill assures better yarn • Better Yarns Find a Ready Market • The Mechanical Equipment Used With The **BRETON MINEROL PROCESS** is offered to the Mills on a most attractive basis

BORNE SCRYMSER COMPANY

17 BATTERY PLACE, NEW YORK

BOSSON & LANE, INC.

Manufacturing Chemists

Established Jan. 1, 1895

Works and Office, Atlantic, Mass.

High Grade Castor Oil Products

Sulphonated-Saponified

Soluble Oil — Para Soap Oil

Turkey Red Oil — Castor Soap Oil

Soluble Pine Oil — B & L Bleaching Oil

PENTRALYN, a superior assistant for Beam, Spool, Bobbin and Package Dyeing.

Bleach Softener CSO, Finishing Sizings and Softeners.

VICTROLYN, the economical assistant in warp sizing. Penetrating, Lubricating and wholly efficient.

B & L Bleachers' Bluings and Violet Tints

GOOD MONEY VALUES-FREEDOM FROM WORRY

A New Standard of Surpassing Merit

DOWANONE YELLOW G N

Double Paste

(Color Index No. 1118)

This is the first of a series of Anthraquinone vat dyes which will conform to the high standards of the Dow Chemical Works, as established for the Indigoid series.

Your own interest demands a practical trial for Dyeing, Padding or Printing.

•

Dyes for Master Dyers

•

Sole Representatives in the United States for the
SOCIETY OF CHEMICAL INDUSTRY IN BASLE
Basle, Switzerland

Sole Selling Agents for
DOW'S INDIGO and MIDLAND VAT BLUES

Ciba Co. Inc.
GREENWICH and MORTON STREETS
NEW YORK

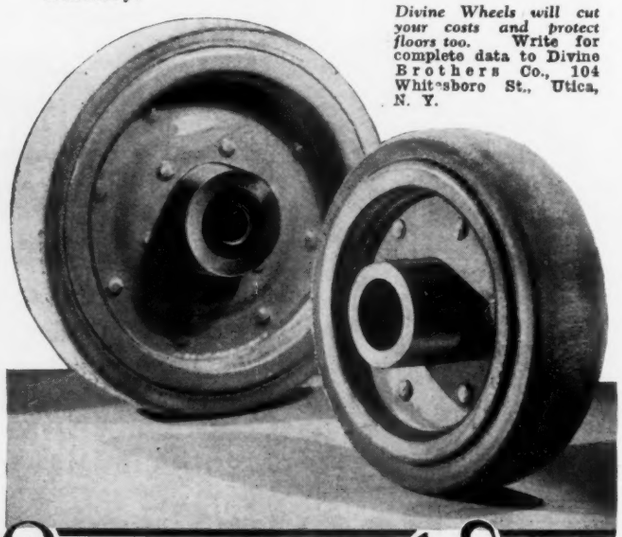
BRANCHES
GREENVILLE, S. C. · BOSTON · CHICAGO · GREENSBORO, N. C.
PHILADELPHIA · PROVIDENCE · SAN FRANCISCO
Ciba Co. Ltd., Montreal, Canada

Lincoln Mills of Alabama say ~

"We have made comparative tests between steel, rubber and Divine Canvas Cushion Wheels. These proved your wheels do not chip, tear, break or peel; are not injurious to floors."

"We have used 100 Divine Wheels for over a year now. They are in perfect condition—entirely satisfactory."

Divine Wheels will cut your costs and protect floors too. Write for complete data to Divine Brothers Co., 104 Whitesboro St., Utica, N. Y.



Divine CANVAS CUSHION TRUCK & CASTER Wheels

Built for Production Economy

Cotton Card Grinders.
Woolen and Worsted Card Grinders.
Napper Roll Grinders.
Calender Roll Grinders.
Shear Grinders.

B. S. ROY & SON CO.
Established 1868
Worcester, Mass., U. S. A.

ROY TEXTILE GRINDING MACHINERY

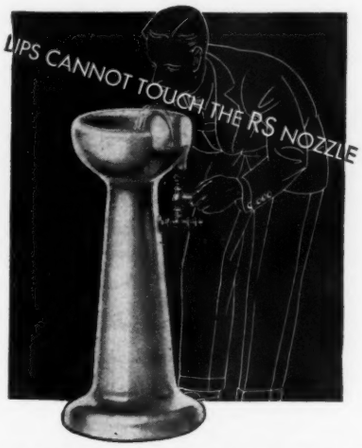
Exclusive Cleaning Features Plus Mechanical Excellence

This company approached the problem of building a cotton cleaning system with a dual purpose . . . First to build it with unusual cleaning efficiency. And —equally important—to match that high efficiency with *mechanical* excellence. As a result of this policy Centrif-Air Adjustable Cotton Cleaning System has established an outstanding record of dependability and long time service.

50% more efficient. Three distinct separations—using mechanical force, centrifugal force and gravity. Write for information.

THE CENTRIF-AIR MACHINE CO., INC.
ATLANTA, GA.

The
CENTRIF-AIR
ADJUSTABLE COTTON CLEANING SYSTEM



HEALTH COMES FIRST

That is the decision of every institution installing Rundle-Spence drinking fountains . . . and they arrive at their decision rightfully.
First, because the sanitary features of an R-S fountain place it in a class by itself; and secondly, because without exception the R-S fountain prevents all users from touching their lips to the jet or nozzle.
Before you decide on the type of drinking fountain to install, write for the R-S catalog. Colors are available for any color scheme.

RUNDLE-SPENCE MFG. CO.
451 N. Fourth St. Milwaukee, Wisconsin

RUNDLE-SPENCE

AHCo

115 Years Experience in Solving FINISHING PROBLEMS

Arnold, Hoffman has shared largely in the progress of the past. But the needs of today have necessitated a far greater concentration on the individual problem—your problem. Nothing is impossible today with our ultra modern laboratory facilities—our expert and introspective chemists and engineers. It may be that some particular processing problem, worrying you right now, has already been solved by Arnold, Hoffman. But regardless of its complexity Arnold, Hoffman will work out its solution for you.

This company is as accessible to you as your telephone or typewriter. Get in touch with the office nearest you.

PRODUCTS—Warp Dressing, Finishing Materials, Soluble Gums, Sizing Materials, Soaps, Soluble Oils, Sulphonated Oils, Alizarine Assistant, Pigments, etc.

SOLE AGENTS FOR Belle Alkali Company of Belle, W. Virginia. Liquid Chlorine, Bleaching Powder, Caustic Soda (Solid and Flaked)

ARNOLD, HOFFMAN & CO., INC.

CHARLOTTE
PROVIDENCE NEW YORK
PHILADELPHIA BOSTON

WE have been appointed agents to handle the sale of the machinery at the Maginnis Cotton Mills, New Orleans, La., also the Harmony Mills, at Cohoes, New York. Both of these plants have up-to-date cotton machinery from the bale to cloth. Lists are being prepared giving the description of this equipment. If you do not receive one promptly, advise us. In the meantime write your requirements and we will gladly quote you on such equipment as you may need.

H. M. McCORD

100 East 42nd St., New York
Telephone Ash 4-0345.

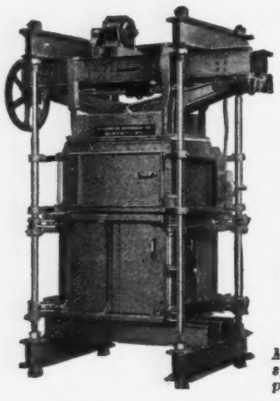
Boston, Mass.
161 Devonshire Street
Telephone: Liberty 5948

Philadelphia, Pa.
1244 Commercial Trust Bldg.
Telephone: Rittenhouse 2184

LOGEMANN

Hand-Belt-Electric-Hydraulic

Baling — Presses



For Waste—
Hand operated Balers—
Deep-box power Balers—
Hydraulic Balers—

For Finished Goods—
Hand operated Balers—
Power toggle-lever Balers—
Hydraulic high-density Balers—

For Yarns—
High-density power Balers—

Model 26-MS. Power Baler specially designed for export yarn baling.

There is a LOGEMANN baler for every purpose.

Write for details specifying your needs.

LOGEMANN BROTHERS CO.

3102 Burleigh St., Milwaukee, Wis.

Value

When YOU Go To
PHILADELPHIA

600 ROOMS AND BATHS

A Room and a Bath For Two and a Half

$2.50 *Single with Bath*
$4.00 *Double with Bath*

WE HAVE THEM AT
HOTEL PENNSYLVANIA
39th & CHESTNUT Sts., PHILADELPHIA

CEILING SWEAT CEILING SWEAT CEILING SWEAT

"What can we do to prevent ceiling sweat?", we are frequently asked.
The *best* answer is:—"Insulate the roof with

Mundet Jointite Cork Board" TRADE MARK

In the past, ceiling condensation, or "sweat", was regarded as a necessary evil. Today we know better. ANY roof, regardless of humidity and regardless of temperature, can be made positively sweat proof by the use of Mundet "Jointite" Cork Board. Besides there is an important fuel saving. We can cite instances without number where the cork has paid for itself in a surprisingly short time. Write for full particulars. Put your roof insulation problems up to Mundet's Roof Insulation Engineers. Make *us* responsible. We have branches in the principal cities of the United States and Canada. Every branch carries stock.

Mundet Cork Corp.

Established 1865

450 Seventh Ave. New York City

"All Roofs Need Insulation"

. . . 10th . . .

Southern Textile Exposition

Textile Hall . . . . Greenville, South Carolina

October 17 to 22 inclusive

THROUGH the use of improved machinery, accessories, and supplies better products are obtained, costs are lowered and profits thereby increased. Once in every two years the shops exhibit in Textile Hall the combined results of invention, ingenuity, and progress. The Southern Textile Exposition is an established factor in the textile industry.

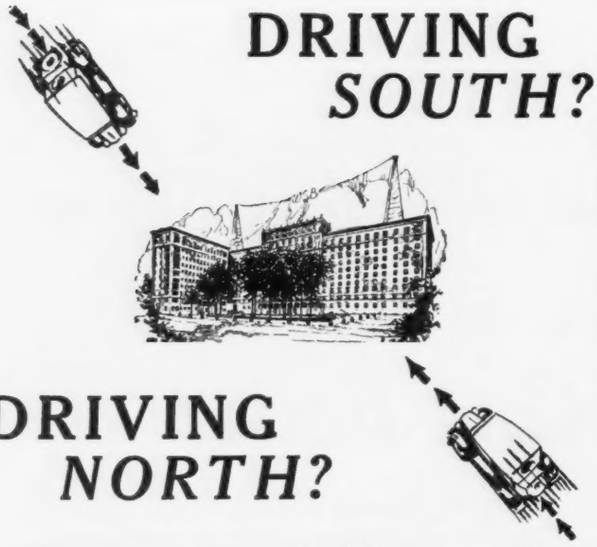
Visitors during the week of October 17 to 22 will see in operation the latest types of machinery used in cotton, silk, rayon and worsted mills, and in dyeing, bleaching and finishing plants. Also there will be exhibited the most recent improvements and refinements in accessories and supplies.

Every manufacturer will want to see equipment which will result in more economical production. He will want his superintendent and department heads, and his operatives to learn how to get the best results from accessories and supplies. The savings in dollars by proper handling and use is as important as acquiring factory equipment.

Special railroad rates and car service have been arranged. Pullman sleeping cars will be operated daily from Atlanta during exposition week. These cars will be set off here all day and will be returned to Atlanta at Midnight. A similar daily service will be operated from Greensboro.

Passes and parking tags will be sent by us to the presidents, treasurers, superintendents, master mechanics and other department heads of southern textile establishments. Exhibitors will distribute thousands of complimentary tickets to operatives. Upon application to the management passes will be mailed to executives anywhere.

Textile Hall Corporation, **Greenville, S. C.**



DRIVING *SOUTH?*

DRIVING *NORTH?*

Be sure to stop over in Atlanta . . . and —by all means—plan to stay at the Biltmore Hotel. Selection of the RIGHT hotel on a motor trip will make it another pleasant memory to add to your treasure chest of delightful experiences.

The Atlanta Biltmore is noted far and wide for its charming hospitality and distinction—it has truly earned the phrase "The South's Supreme Hotel". And yet, a glance at our rates will prove that there's no added charge for these qualities.

Conveniently located, halfway between the Terminal and Peachtree Stations. Golfing privileges, to some of the finest courses, extended to our guests. If you're interested in radio: Station WSB is located at the Biltmore, and a special elevator will take you up to the studio.

All rooms are outside, airy, beautifully furnished, each with private bath and circulating ice water. Rates are surprisingly low . . . $3, $4, and $5, for single rooms; and $5, $6, $7, and $8 for double rooms. Popular priced meals served in all dining rooms.

ATLANTA BILTMORE

"The South's Supreme Hotel"

A TRULY GREAT HOTEL

When you visit Detroit next time stop at Hotel Fort Shelby. You'll enjoy its thoughtful, efficient, unpretentious service . . . its savory foods and cozy, cheerful, charming rooms. ¶ Every unit in the Hotel Fort Shelby is paneled . . . servidor equipped . . . attractively appointed and popularly priced; all rooms have private bath and circulating ice water. ¶ Hotel Fort Shelby's location in the heart of Detroit's shopping, theatre, financial, insurance and wholesale districts is a happy one . . . no other large hotel in the metropolitan area is so near the principal railway terminals, airports and steamship piers. 900 rooms . . . many as low as $3.00 per day . . . suites $10.00 and upward.

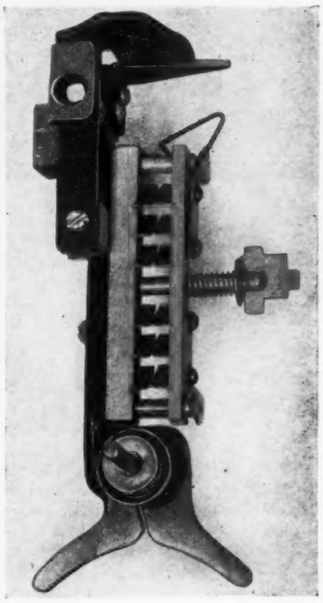
Motorists are relieved of their automobiles at the door without service charge. Write for free road map, and your copy of "Aglow with Friendliness," our unique and fascinating magazine.

HOTEL Fort Shelby

"AGLOW WITH FRIENDLINESS"

E. J. BRADWELL, *Manager*

DETROIT



What Do More and More Spinners Say?

"I am now using the Eclipse Yarn Cleaner"

BECAUSE

They produce a cleaner yarn than can be produced otherwise.

They eliminate weak and soft spots, also remove slubs and other imperfections from the yarn.

They are complete "insurance" for better yarn —*Good yarn is good business.*

The Eclipse Yarn Cleaner is an attachment that can be applied to most types of winding machines.

Write for complete information.

ECLIPSE TEXTILE DEVICES, Inc.,
Elmira, New York.

ECLIPSE
IMPROVED
Yarn Cleaner

The Extra-wear Spinning Ring

DIAMOND FINISH

"Gee, it's hot!"
—but never too hot to start new DIAMOND FINISH Rings!

If you need new rings, go ahead and install them regardless of hot weather— provided they are DIAMOND FINISH. More and more of our customers are starting rings in "dog day" weather, with entire success. Why not forget the old-fashioned notions and remember DIAMOND FINISH for easy starting every time!

FREE SAMPLES
GLADLY SENT

Whitinsville (Mass.) SPINNING RING CO.

Devoted to making "DIAMOND FINISH" Spinning and Twister Rings since

1873

Advertisers' Index

A

Aberfoyle Mfg. Co. 78
Acme Steel Co. 101
Adolff Bobbin Co. 108
Akron Belting Co. 71
Aldrich Machine Works..... 4
Alemite Corp. 1
Allis Chalmers Mfg. Co..... 52
American Enka Corp. ..... *
American Telephone & Telegraph Co. 45
Arguto Oilless Bearing Co. ...119
Arkansas Co., Inc. ..... *
Armstrong Cork Co. 6
Arnold Hoffman & Co., Inc. ..113
Atlanta Biltmore Hotel 116
Atlanta Envelope Co. 104
Atlanta Harness & Reed Mfg. Co. 54
Atwood Machine Co. 82

B

Barber Colman Co. 49
Barber Mfg. Co. ..... *
Barkley Machine Works..... 72
Bedaux Co., Chas. E. 58
Boger & Crawford 92
Bond & Co., Chas. ..... *
Borne Scrymser Co. 111
Bosson & Lane 111
Brinton Co., H. 87
Buffalo Electro Chemical Co., Inc., ... 59
Butterworth & Sons Co., H. W. 3

C

Campbell & Co., John ..... *
Centrif-Air Machine Co., Inc...113
Ciba Co. 112
Clinton Corn Syrup Refining Co. 54
Colgate-Palmolive Peet Co. ... *
Corn Products Refining Co....104
Cowles Detergent Co. 69
Cyclone Fence Co. ..... *

D

Dayton Rubber Mfg. Co. ..... Inside Front Cover
Detergent Products Corp..... *
Divine Bros. Co. 112
Dixie Mercerizing Co. ..... *
Dronsfield Bros., Ltd. ..... *
Draper Corporation ..Front Cover
Dupont de Nemours & Co. Inc., E. I. ..... *

E

Eclipse Textile Devices Co. ...117
Emmons Loom Harness Co.... *

F

Fafnir Bearing Co. ..... *
Fisher Governor Co. ..... *
Flexible Steel Lacing Co.....119
Foster Machine Co. ..... *

G

Gastonia Textile Sheet Metal Works 72
General Dyestuff Corp..... *
General Electric Co. ..... *
General Electric Co., Nela Park 56
General Electric Vapor Lamp Co. ..... *
Goodyear Tire & Rubber Co... 41
Grasselli Chemical Co.....107
Graton & Knight Mfg. Co..... 70

H

H. & B. American Machine Co. 43
Halton's Sons, Thomas..... 7
Hart Products Corp. ..... *
Hemphill Co. 96
Henderson Fdry. & Mach Works 108
Hercules Powder Co., Inc.... 11
Hermas Machine Co. 72
Hotel Pennsylvania 114
Hotel Fort Shelby 116
Hotel Shelton 109
Howard Bros. Mfg. Co..... 2

I

Industrial Rayon Corp. 16
International Nickel Co. 10

J

Jacobs Graphic Arts Co. 106
Jenkins Bros. 119

K

Kali Mfg. Co. 91
Kaumagraph Co. ..... *
Keever Starch Corp. 108

L

Laucks, Inc., I. F. 47
Laurel Soap Mfg. Co. 89
Lawrence Leather Co., A. C... 59
Lockwood Greene Engineers, Inc. 119
Logemann Bros. Co. 114
Loper Co., Ralph E. 54

M

Manhattan Rubber Mfg. Co. Division....Inside Back Cover
Marston Co., John P. 72
Mathieson Alkali Works, Inc.. 14
McCord, H. M. 114
Merrow Machine Co. 73
Miller-Bryant Pierce Co..... 72
Moccasin Bushing Co. 54
Morehead Mfg. Co. 63
Mundet Cork Corp. 115

N

National Aniline & Chemical Co. ..... *
National Oil Products Co. ... 50
Neumann & Co., R. 72
New York & New Jersey Lubricant Co. 65

O

Oakite Products, Inc. 89
Old Dominion Box Co. 91

P

Parks Co., M. H. ..... *
Parks & Woolson Machine Co. *
Pearson & Sons Co., Jos. T. 101
Phila. Felt Co. 70
Platts Metallic Card Clothing Co. 73
Powers Regulator Co. ..... *

Q

Quissett Mills 97

R

Reeves Pulley Co. ..... *
Roy & Sons Co., B. S. 112
Royce Chemical Co. 13
Royersford Needle Works, Inc. *
Rundle Spence Mfg. Co. 113

S

Saco-Lowell Shops ..... *
Sargents Sons Corp., C. G.... 12
Scholler Bros., Inc. 101
Scott & Williams, Inc. 76
Scott Co., Henry L. 71
Seydel-Wooley Co. 54
Sherwin-Williams Co...Back Cover
Showalter Printing Co., A. J..119
S. K. F. Industries, Inc. 9
Solvay Sales Corp. 104
Sonoco Products Co..... *
Standard Brands, Inc. ..... *
Standard-Coosa-Thatcher Co... 98
Standard Trump Bros. Machine Co. 75
Steel Heddle Mfg. Co. 61
Stein, Hall & Co., Inc. ..... *

T

Terrell Machine Co. 67
Textile Finishing Machinery Co. 120
Textile Hall Corp. 115
Textile Machine Works 99
Torrington Co. .....85 and 86
Tubize Chatillon Corp. 103

U

Union Special Machine Co. .. 88
Universal Winding Co. 95

V

Veeder Root, Inc. ..... *
Viscose Co. ..... *

W

Waterman Currier & Co. 101
Weimar Bros. 101
Westinghouse Elec. & Mfg. Co. *
Whitin Machine Works 5
Whitinsville Spinning Ring Co..117
Wildman Mfg. Co. 80
Willcox & Gibbs Sewing Machine Co. 90
Williams & Sons, I. B. 8
Wolf & Co., Jacques 105
Wright Machine Co. 72

"Smoother than Grease"

"Arguto Bushings have outlasted 7 Bronze Bushings in the same place. Very severe service."

—unsolicited testimonial

ARGUTO OILLESS BEARING CO.
WAYNE JUNCTION PHILADELPHIA

AN UP-TO-DATE PRINTING PLANT

equipped with modern machinery and a staff of competent workmen, solicits, thru this publication, a trial order on your printing needs.

We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

The A. J. Showalter Co.
PRINTERS AND PUBLISHERS
DALTON GEORGIA

Distinctive Among Belt Lacings

Only Alligator Steel Belt Lacing combines the features of (1) a smooth, flexible, rocking joint (2) great surplus strength (3) preservation of the belt ends and (4) easy, rapid application with a hammer as the only tool. It compresses the belt end in a powerful vise-like grip. No holes to punch. Often lasts the full life of the belt. Suitable for all types of belting. Eleven sizes. Made also in Monel Metal. Sold throughout the world.

FLEXIBLE STEEL LACING COMPANY
4619 Lexington Street Chicago, Illinois
In England at 135 Finsbury Pavement, London, E. C. 2

"NEVER LETS GO"

Lockwood Greene Engineers, Inc.

Mechanical - Electrical
Structural Engineers

Plans, Specifications, Supervision of Construction, Machinery Lay-outs, Location Studies, Manufacturing Reports, Appraisals, for Industrial Plants

NEW YORK BOSTON CHICAGO
CLEVELAND SPARTANBURG

5 BIG ADVANTAGES
Check them!

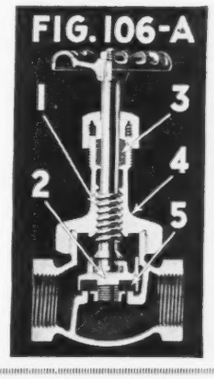
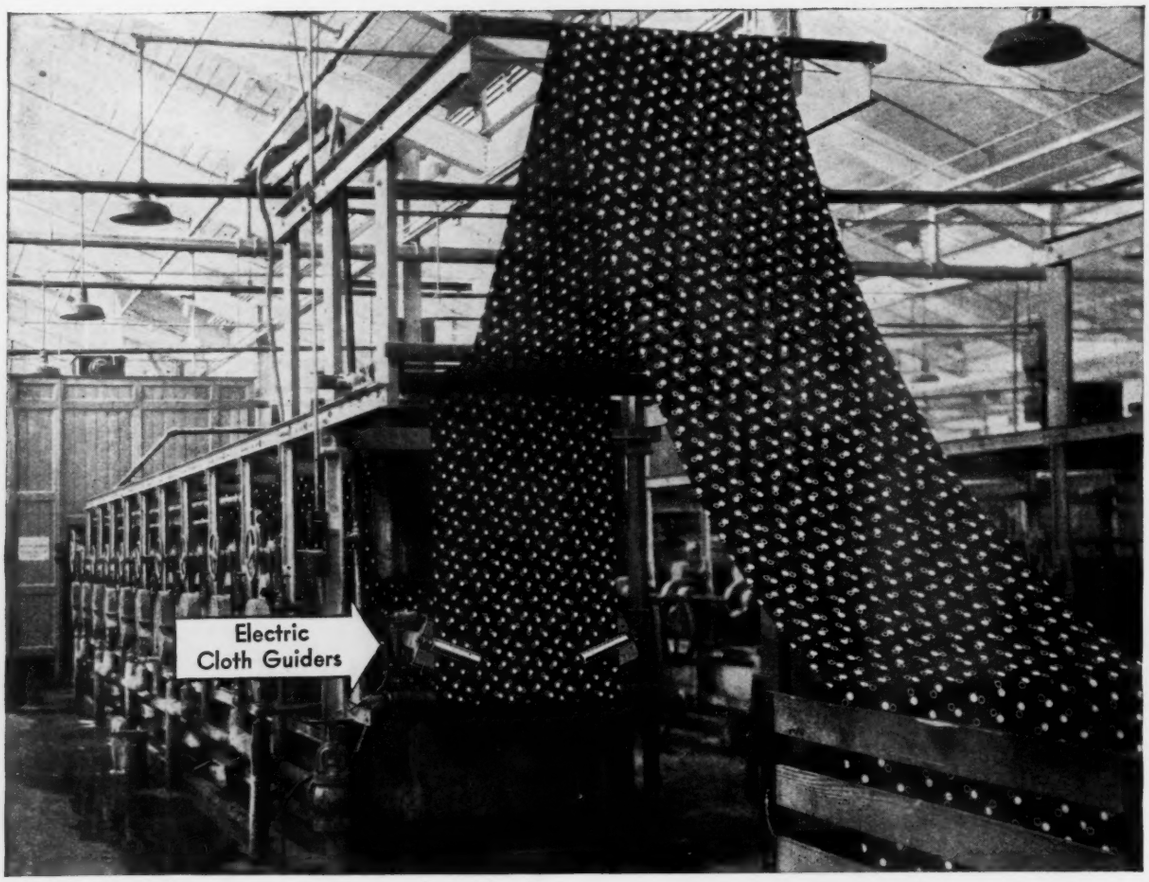


Fig. 106-A Jenkins Standard Bronze Globe Valve has:—

(1) More spindle threads in contact with bonnet; (2) slip-on stay-on disc holder; (3) extra-deep stuffing box holds more packing; (4) *one-piece* screw-over bonnet for strength; (5) Jenkins renewable composition disc.

Same advantages in angle, cross and check patterns, screwed or flanged. Ask your supply house or write for Form 142. JENKINS BROS. 80 White St., New York, N. Y., Bridgeport, Boston, Philadelphia, Chicago.

JENKINS VALVES
Since 1864



WHAT'S HAPPENING in the FINISHING PLANTS

Executives, determined to reduce Production Costs are installing Electric Cloth Guiders.

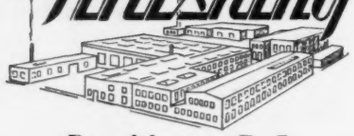
When you install Electric Cloth Guiders you get More Work and Better Work at Less Cost. That's why plant executives particularly prefer them.

More Electric Cloth Guiders have been bought during the past four months, than at any other comparable period, since they were first offered to the trade.

Each Guider is a complete unit in itself and can be easily transferred from one machine to another. They are equally effective at high or low cloth speeds, and on wet or dry goods. The amount of power they consume daily is actually less than that of an ordinary 50-Watt light bulb.

Since our original trial offer over 95% of trial installations have resulted in actual sales and subsequent repeat orders have been over 43%. We have prepared a 16-page booklet that fully describes and illustrates these Cloth Guiders, your copy will be sent promptly upon request .

The Textile Finishing Machinery Co.

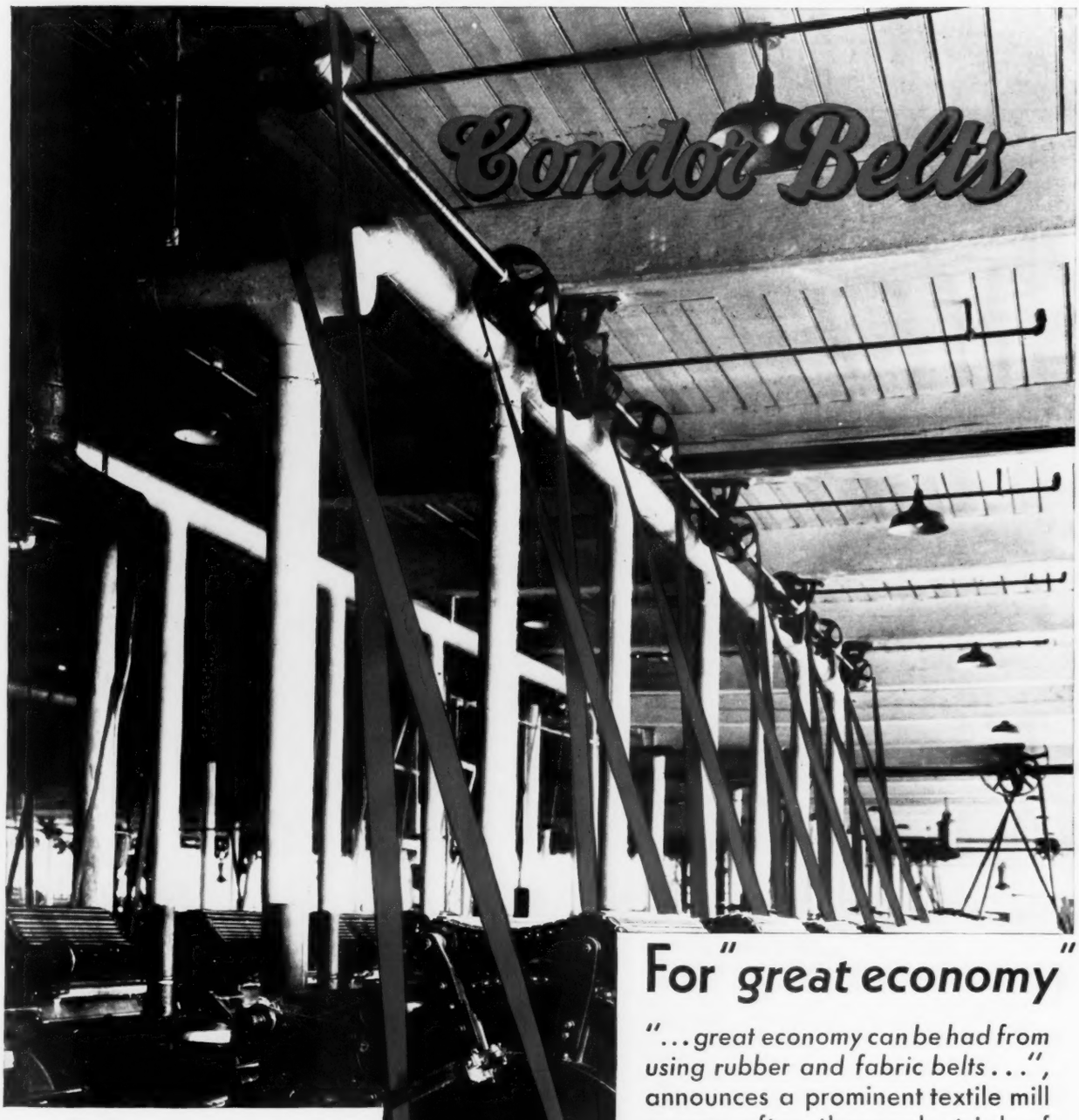


New York Office
50 Church St

Providence, R. I.

Southern Agent
H. G. Mayer, Charlotte, N. C.

GUIDE YOUR FABRIC AT THE START FOR A LOWER COST AT THE FINISH



Condor LINE

V-Belt	Fire Hose
Flat Belt	Steam Hose
Cone Belt	Mill Sundries
Air Hose	Suction Hose
Acid Hose	Oilless Bearings
Water Hose	Rubber Lined Tanks

Rubber Covered Rolls
Industrial Brake Blocks and Lining

For "great economy"

"...great economy can be had from using rubber and fabric belts...", announces a prominent textile mill owner after thorough trial of belting on his own machines.

Condor Textyl Belts are used in over 400 textile mills because their owners have learned the truth of the above statement.

Condor Belts consistently show "great economy" for their users.

Have you tried Condor Textyl Belts?

The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Executive Offices and Factories, Passaic, New Jersey

S-W STANDARD ROOF COATINGS for TEXTILE MILLS and VILLAGES

are important part of S-W Standardization Plant Upkeep Plan

HARDLY any single item of mill and mill village upkeep is more important than *keeping down the upkeep on the roof.* The Sherwin-Williams Paint Standardization Plan provides this vital protection to property, with a complete line of standard roof coatings. These roof coatings, along with other paint products included in the Plan, have proved their effectiveness and *economy* in actual service.

The Bauer & Black Plant at Chicago, Illinois, where Bauer & Black Surgical Dressings and Allied Products are made. This plant uses the S-W Paint Standardization Plan.

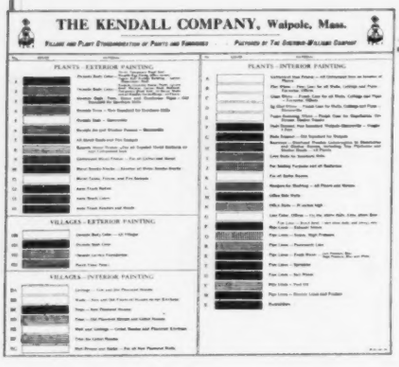
S-W EBONOL Ebonol is an excellent black paint for general exterior upkeep work. It is acid free, hence ideal for use as a roof paint on prepared or so-called "rubber" roofing, metal skylights, flashings and down spouts. It has splendid body and *will not run or dry out* under the heat rays of the sun. Sets in 24 hours.

EBONOL REDUCER For use when it is desired to reduce Ebonol to a thinner consistency and make it set more quickly.

QUICK DRYING EBONOL This product is similar to Ebonol except that it is not quite so heavily bodied. It sets in about 8 hours.

LIQUID ROOF CEMENT S-W Liquid Roof Cement is available in three colors—black, red and green. It is an effective combination of pitches, oils, and long asbestos fibre. Ideal for repairing many different types of roofs, including tar, gravel, slag, concrete, tile, tin, galvanized iron, composition, felt, canvas and corrugated iron. It is applied with a "squeegee."

ELASTIC ROOF CEMENT S-W Elastic Roof Cement is also available in three colors: black, red and green. Made of pitches, oils and long asbestos fibre, it is an excellent cement for patching holes, joining and relining gutters, eaves-troughs, down spouts, drain pipes, valleys, skylights, chimney flashings and cornices. *Elastic Roof Cement* is very durable and will stand extreme temperatures without cracking. Applied with a trowel.


THE KENDALL COMPANY, Walpole, Mass.
PLANTS - EXTERIOR PAINTING
PLANTS - INTERIOR PAINTING
VILLAGES - EXTERIOR PAINTING
VILLAGES - INTERIOR PAINTING

Write us about the STANDARDIZATION PLAN . . .

This plan eliminates guesswork and mistakes in painting mill and village property. Individual charts showing standard colors and materials are specified for each customer. This chart shows WHAT material to use . . . HOW . . . WHEN . . . WHERE. It assures mill management of receiving the same grade—and the *right grade*—of product, as first recommended by S-W Paint Engineers after thorough survey of individual requirements.

Many of the leading textile mills in the country have adopted this plan. Their names and complete details about the Plan will be valuable to you. Furnished without cost or obligation. Write The Sherwin-Williams Co., Cleveland, Ohio.

NOTE: Textile offices at Philadelphia, Charlotte, Spartanburg and Atlanta. Our warehouses at Charlotte and Spartanburg carry stock for prompt service and convenience of the textile trade.

Trade Mark Registered

SHERWIN-WILLIAMS

STANDARD PRODUCTS FOR TEXTILE MILLS AND VILLAGES